This issue of the Professional Geological Scientist is dedicated mostly to the proceedings of the Annual Meeting of the APGS held December 1-3, 1977 at the Hotel Menger, San Antonio, Texas. The Texas Section of APGS is to be congratulated for getting together a first-class meeting, run in a highly professional manner for the 107 members representing 26 sections of the APGS.

Responsible directly for the mechanics of the meeting were: A. Wayne Wood, General Chairman; Mrs. A. Wayne Wood, Hospitality; M. E. Formey and C. J. Worrel, Housing and Registration; Robert L. Begeman, Ladies Entertainment; Thomas D. Barber, Program; Alvin Schultz, Projection; and M. O. Turner, Publicity.

Herein, the proceedings of the meeting are arranged essentially in the order in which they occurred with the business portions of the meeting first, followed by a few customary headings, and then the papers of the technical sessions grouped together at the end.

Advisory Board Meeting

A meeting of the Advisory Board of the Association of Professional Geological Scientists was held at Hotel Menger, San Antonio, Texas, on December 1, 1977, pursuant to proper and sufficient notice given by Chairman Grover E. Murray. The following Delegates or Alternates, representing 36 votes, were present: Grover E. Murray, Chairman; Edward A. Hall, CA; Richard D. Holt, OH; Daniel P. Spangler, FL; Wilson G. Harris, Jr., IL-IN; Vivo A. Goutaus, LA; Thomas W. Bastien, MS-WI; Joseph Fritz, MS; Louis Unfer, Jr., MO; Russell E. Clemons, ND; Russell G. Slayback, NE; Alan H. Coogan, OH; John S. Fryberger, OK; Derek B. Tatslock, PA; Burt E. Hamric, TX; Quey C. Hebrew, UT; Frank H. Jacobeen, Jr., VA; and Peter Lassing, WV.

James U. Hamersley reviewed legislative activity for 1977, and reported on upcoming legislation and proposed rules and regulations. President John A. Taylor noted that the membership of the Association had charged the 1977 Administration to concentrate heavily on legislative matters this year, and that Adolf Honkala, Stuart Hughes, Allen Agney, T S Ary, and Frank Jacobeen, Jr., assisted by Hamersley, had accomplished much.

There was considerable discussion regarding the dismissal of Dr. Mckelvey from the Directorship of the USGS. Taylor noted that there is little the Association can do about the dismissal, but that he and others had been active in urging Secretary Andrus to be certain that the new Director be appointed in response to recommendations made by the National Academy of Sciences. President Taylor urged all members to contact their Senators regarding confirmation of a non-political appointee worthy of the office (See APGS resolution under Annual Business Meeting).

Goutaus distributed copies of the following resolution to the assembled Delegates:

**RESOLUTION**

I. The National APGS Executive Committee will make it a high priority item of business to immediately consider any proposed political legislation that attempt to introduce or pass legislation concerning any facets of the earth sciences domain that might be inimical to our country or to any of our Professional Geological Scientist members (Regardless whether they constitute a handfull or a majority of our membership).

II. The APGS will take whatever reasonable means necessary to combat such inequities; even if it is nothing more than a letter written to the appropriate authorities stating the APGS "Get Feeling" on the situation. The means will always be of a positive, timely, offensive type.

III. Specific Example: The proposal by the US Congress to force horizontal and vertical divestiture of integral divisions of energy companies in the immediate future.

Larry Woodfork noted that neither the resolution nor the attached material provided facts needed for a creditable stand by APGS, and that APGS needed to be able to substantiate fully any stand taken on divestiture. It was suggested that a stand against divestiture should be made on the basis that this is another inroad against our basic freedoms. Hamersley recommended that APGS testify only on matters having an adverse effect on the profession. In a close vote, 23 ayes, 21 nays and 1 abstention, the Advisory Board approved the Resolution proposed by the Louisians Section and referred it to the Executive Committee for consideration and action.

Chairman Murray noted that one of the most serious problems facing the professional is the need for more communication with the public, particularly elected officials. It was suggested that any members of the Association, having an opportunity to visit Washington, DC, take time to confer with staff people employed by the legislators from the member's home districts. It is also important that members contact and confer with local legislative staff people. Hamersley suggested that direct campaign contributions are the best way to get the attention of legislators. It was suggested that letters written to legislators include questions that require an answer.

Goutaus suggested that members develop a one-on-one involvement with the public to educate them regarding our industries and our profession, and the effects of government laws and regulations. It was suggested that local members and Sections organize seminars for public officials. Fryberger reported that the Oklahoma Section has conducted such educational seminars and is now organizing a speakers bureau. Bastien noted the need for more contact with students needing guidance relative to future employment and professional development.

Spangler brought up the question of Sections becoming members or affiliates of state academies of science. Woodfork and Lassing reported that this had been done in West Virginia, and that it had provided the Section with more opportunities to participate in functions that involve the public and students, such as career days.
Chairman Murray noted that he will be taking office as President of the Association on January 1, 1978, and that he would appreciate suggestions from the Sections and members for possible appointees to Association committees.

Edward E. Rue, incoming Chairman of the Advisory Board for 1978 noted that the 1978 Board should elect four representatives to the Executive Committee of the Association. Brunton reported that Headquarters still does not have a complete list of Delegates for 1978, and needs help obtaining this information each year prior to the annual meeting. The Advisory Board recommended that the Executive Committee direct all Sections to hold election of officers on or before a given date proceeding the Annual Meeting by a sufficient time for the results of the elections to be available at the Advisory Board meeting.

The following Advisory Board Delegates, representing the total list of Delegates for 1978 that are known at this time, were nominated as potential candidates from which four names will be elected to serve on the Executive Committee for 1978: Howard T. Anderson, CA; Joseph Fritz, MS; John S. Fryberger, OK; Burt E. Hamric, TX; Richard W. Lenke, CO; Peter Leasing, WV; and William H. Smith, IL-IN. It was moved and seconded that the election of four of the seven nominees be conducted by mail ballot.

Leasing noted that the U.S. Department of Agriculture has published proposed rules and regulations on mined land reclamation, and that the soil and rock classifications used do not coincide with accepted, standard geologic classifications. It was the consensus that this information be presented to the Executive Committee with a recommendation that AEGS protest the use of terms other than standard geologic classifications.

Executive Committee Meeting

A meeting of the Executive Committee of the Association of Professional Geological Scientists was held at the Henger Hotel, San Antonio, Texas on December 1, 1977 pursuant to notice given by President John A. Taylor. President Taylor called the meeting to order at 1:45 pm. Executive Committee members present were: John A. Taylor, President; Wilson G. Harris, Jr., Vice President; Larry D. Woodfork, Secretary-Treasurer; C. E. Frouy, Editor; Grover E. Murray, President-Elect; Joseph Fritz; Frank H. Jacobson, Jr.; Louis Unfer, Jr.; Charles J. Mankin; Richard W. Lenke; and Arthur F. Brunton, Executive Director.

There being no objection from the Committee, President Taylor appointed Robert Miller, Daniel P. Spangler, and Robert A. Tackles to the Committee pro tempora. President Taylor opened the meeting for business and introduced the following guests: Thomas W. Bastian, Peter Leasing, Edward E. Rue, and Derek B. Tackles.

Leasing requested permission to present a matter regarding U.S. Department of Agriculture proposed classifications for soils for purposes of mined land reclamation rules and regulations. He noted that many of the proposed soil scientist terms and in conflict with accepted geologic terms. He recommended that the USDA be asked to use existing geologic terms rather than the recently invented soil scientist terms in their classifications.

The committee approved a motion that President Taylor be directed to correspond with the U.S. Department of Agriculture, suggesting the use of accepted geologic terms for soil and rock classifications, and offering to meet with members of the Department to assist in this matter. Mankin suggested that the matter of USDA classification be brought to the attention of all AGI Member Societies. Leasing was directed to send copies of the material to President Taylor, Headquarters, and to Mankin.

Old Business

Salary Survey: Fritz presented a proposed format for gathering information and data for a national salary survey in the geological sciences. He noted that he had used the term "employment survey" in the event that there may be those who would object to a salary survey. Unfer suggested that the survey not go beyond AEGS membership to have validity, particularly as to younger professionals. Woodfork questioned the need for such a survey. Mankin noted that there is some interest among AGI Member Societies in obtaining the results of a salary survey, but not much interest in providing financial support. Jacobson suggested that Headquarters obtain a copy of the new 8th Edition of Salaries of Scientists and Engineers and Technicians published by the Scientific Manpower Commission.

It was the consensus that the Association not conduct a salary survey at this time, and that Headquarters obtain the SMC publication.

Divestiture: Fritz presented a proposed format requested by the Executive Committee at the June 11 and 12 meeting, for obtaining information and opinions from the membership on vertical divestiture. Jacobson suggested adding, under line 9 of the proposed format, a line for "no opinion". Murray was asked to report on the actions of the Advisory Board on the question of divestiture. Murray reported that the Louisiana Section has proposed a resolution (See Resolution under Advisory Board Meeting) in this regard and that the Resolution had been recommended to the Executive Committee on a vote of 23 to 21, but that most Delegates at the meeting objected to the wording of Paragraph III electronically that officers and record at the results of the Advisory Board Meeting under divestiture. Murray reported that the Louisiana Section has proposed a resolution (See Resolution under Advisory Board Meeting) in this regard and that the Resolution had been recommended to the Executive Committee on a vote of 23 to 21, but that most Delegates at the meeting objected to the wording of Paragraph III electronically that officers and record at the results of the Advisory Board Meeting under divestiture. This led to considerable discussion in which several committee members expressed doubt that AEGS has the type of actual data regarding divestiture needed for a "gut-feeling" basis. A motion was made and supported that the Association issue any statements on divestiture on a "gut-feeling" basis. This led to a second motion, approved, that the Executive Director be authorized to seek professional counsel as to how a non-factual questionnaire can be developed on vertical divestiture. Then this was followed by a third motion, also approved, that this Executive Committee table the matter of divestiture.

It was the consensus that incoming President Murray be directed to appoint an ad hoc committee to act as a repository for all information and facts accumulated on the subject of divestiture.

At the direction of the Committee, the Louisiana Resolution is hereby noted and the Executive Committee does hereby declare the preceding three motions sufficient response to that resolution.

Murray continued with his report on the results of the Advisory Board Meeting held earlier. He noted that the Board had recommended that all Sections be required to hold election of officers and report the results to Headquarters by a certain deadline. A motion was made, and approved, that the Executive Committee direct all Sections to report the results of new officers to Headquarters on or before October 15th of each calendar year.

New Business

Arizona Section Petition: The petition for Section status received from a majority of the members residing in the State was approved.

Association Historian: The Executive Committee established the post of Official Association Historian. The post will be filled in the near future.

Ben H. Parker Memorial Medal: The Executive Committee established a policy whereby every year one of the members of the Executive Committee and the Legislative and Regulatory Committee regarding vacancies occurring in governmental departments.

Finance: Woodfork presented the AEGS Budget Comparison for 1977 through November 30. The report indicated the Association to be in the black by about $10,000 at that date with the month of December to go. The Committee approved an expenditure of $200 to assist the Michigan Section in its first year of operation. Also the Committee approved an expenditure not to exceed $500 to reimburse the Illinois-Indiana Section for a deficit incurred as a result of the Section annual meeting.

Legislative and Regulatory: Taylor reviewed the report of the Legislative and Regulatory Committee. The Committee suggested that the Committee has suggested part-time employment of a geologist in Washington, DC to review bills and to work...
in conjunction with Legislative Counsel in tabulating pending legislation. Jacobson was directed to seek
more information and clarification from Chairman
Honkala.

Public Affairs: Murray read the report of the Public
Affairs Committee. Jacobson discussed his proposal that
APG make use of the professional public relations firm
retained by AAPG. The proposal was referred to the AAPG
Public Relations Counsel and discuss methods and
charges relative to PR assistance to the Association.
Leake noted that A. L. Satterthwaite (see letter under State
Sections - Colorado in this newsletter) has been very
active in Colorado disseminating information on energy
and other matters to the public through the media of
Letters-to-the-Editor. It was the consensus that
Satterthwaite be appointed chairman of a Public Informa-
tion Committee on the national level and coordinate similar
efforts by all Sections.

Membership: Harris reported for the Membership Committee.
As of November 30, 1977, 5534 Active Members, 56
Associate Members and 59 applications on hand.

Professional Guides: Prouty reported for the Profes-
sional Guides Committee, chaired by James Dunn. One
guide was published during the year entitled "Geologic
Logging and Sampling of Rock Core for Engineering
Purposes". Four more guides are in the hopper in various
stages of preparation. These are entitled, 'Special
Problems of Professional Geologists in the Study of
Monzogranitic Ore Reserves', 'Geochemical Prospecting
and Geochemical Analysis', and 'Success Possibility and
Economic Analysis of Hydrocarbon Prospects'.

Plans and Programs for the Future: Ed Rue, Chairman of
the Committee, summarized the report prepared by an
Ad hoc committee for the Executive Committee. (The
report is shown in full, further on, under the heading of
'Reports for the Executive Committee'.) Also the report
of the Policy Board is shown there also.

Annual Business Meeting

The Annual Business meeting of the Association of
Professional Geological Scientists was held at the
Menger Hotel, San Antonio, Texas, on December 3, 1977.

President Taylor reviewed the Association activities
during 1977. Larry D. Woodward reported on the financial
status of the Association. C. E. Prouty gave his
Editor's Report.

It was moved and seconded that the following resolu-
tion presented by Frank Conselman be adopted:

WHEREAS, the U. S. Geological Survey has established
an international as well as American reputation as a scienti-
fic and professional organization of the highest order; and,
WHEREAS, Dr. Vincent McKelvey has served as Director of the
U. S. Geological Survey with dedication and distinction,
and in close relationship with the practice of the geologi-
cal sciences throughout the United States; and,
WHEREAS, the enforced resignation of Dr. McKelvey for
political purposes marks a shocking intrusion of politics
into the functioning of a first-class, non-political
organization of previously impeccable standards; and,
WHEREAS, the unwarranted and arbitrary replacement of Dr.
McKelvey will not only be highly detrimental to the morale
and efficiency of the Geological Survey, but will lessen
the credibility of the incoming Director and of the
impartiality of the Survey's future conclusions;
NOW THEREFORE be it resolved, that the Association of
Professional Geological Scientists place itself on record as
doing the treating of Dr. McKelvey, and the implied
possibility of the prostitution to political purposes of as
respected an organization as the U. S. Geological Sur-
vey.

The resolution was carried.

It was moved and seconded that the Association
adopt a resolution of thanks, appreciation, and congratu-
lations to the Texas Section and the members of
the Annual Meeting Committee for an excellent meeting. The
motion was carried.

Reports to the Executive Committee

(Report of the Ad Hoc Committee on Plans and
Programs of the Future by Edward E. Rue, Chairman is
printed below in full. Follow-up action in regard to
recommendations made herein is yet to be decided by the
Executive Committee, but the important thing at this
stage is input regarding the contents of this report from
the membership.)

Purpose

Last year, President Jack Taylor appointed an ad hoc
committee to recommend to the Executive Committee and
proposed to the Advisory Board certain courses of action
which might be taken to more rapidly accomplish the noble
purposes for which the AGS is dedicated.

Method of Operation

The committee operated throughout the year by means of
round-robin correspondence. After the initial letter
to the members of the committee from the chairman, each
member sent copies of his comments to all other members
of the committee. Since this report is not the result of
a poll and has not been previously presented to the
Executive Committee or the Advisory Board, it is recom-
mended that the committee be reinstated for one more year only
to correlate any input from the Executive Committee, the
Advisory Board, and hopefully the membership at large.
At the time a final report can be made, notwithstanding
any action which the Executive Committee may deem advisable
to take as a result of this present report.

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to take as a result of this present report.

Timing and Adolescence

Just previous to Jack Taylor's tenure of office as
President, Frank Conselman ended the growing pains of
adolescence for the AGS by combining the AGS certifica-
tion program with ours. This was a feat that none but
Frank could have accomplished and for which we all should
be eternally grateful. The influx of AGS members to us
afterwards is proof that the plan worked to the advantage
of all geologist. It also shows that specialty certifi-
cation is worthwhile and we should do all we can to nurture
it. With this fourteen year old adolescent period behind
us, the timing is right and the way should be clear for
progress and expansion in many areas.

Definition of Geology for Dictionary Use

About 15 years ago, the Subcommittee on Definitions of
the Professional Standards Committee of the American
Geological Institute headed by Frank Conselman
presented a definition of geology. It was recommended by the
Professional Standards Committee that wide circulation
be made of it especially for dictionary use, where the
public might go to find out what geology is. Since then the
definition has been widely expanded and
embellished for use in acts to license geologists. The
subsequent definitions have far exceeded what was intended for use
by the public and too long to be committed to memory by
freshmen geology students. If the geological profession as
a whole cannot get a simple thing like this done in
fifteen years, we ought to do it for them. It is recom-
mended that AGS notify all of the major scientific
printing companies and major producers of dictionaries that
the preferred definition of geology is:

1. "Geology is the science which treats the composition
described in the rocks."

2. "Geology, the applied science, art or practice of
utilizing knowledge of the physical, chemical,
biochemical and structural properties, configura-
tion and forces of the earth, and its many
constituent rocks, minerals, and fluids, to pre-
dict, locate and evaluate the occurrence of
minerals, sources of energy and naturally
occuring phenomena that may be useful or harmful
to mankind."

Registration of Geologists

During the early days of AAPG, it was a general
policy not to promote registration. The decision of
whether or not a State Section wanted registration was
entirely up to that particular Section. Now that many
states have registration acts and many are proceeding
in that direction, the committee recommended that the
national association take more of an activist role in
this area.
Specifically, we should send out to each Section (in light of present acts) what we think the bill should have in it, particularly those things that would tend to main-
tain reciprocity. This would mean the things we do not want as well as the things we do want. Perhaps even the
definition of geology could be standardized.

All of this would take a review of all present acts. It
would be helpful if we have the inputs from those in various
states who were instrumental in getting the law through
the various channels, even from those who were not able
to get laws through the first time.

Public: Confusion Toward Geological Certification

For over thirteen years many of us have used the
term Certified Professional Geologist on our letterheads
and have signed our names preceded by CPG.
For quite so long, members of the Division of
Professional Affair of AAPG have used the term Certified
Petroleum Geologist on their letterheads and have signed
their names followed by the letters or society. Adding the
letter S onto some of the letters only adds to the
confusion, and any explanation of Geological Scientist
is practically impossible since it is generally means
"Geoscientific Scientist" which is redundant and we are
not trying to be that. It is recommended that the DPA
of AAPG be approached to see if both terms, Certified
Professional Geologist and Certified Petroleum Geologist
could be unilaterally scrapped in lieu of a third term,
Certified Public Geologist to be used by all chiefs of
any variety including the DPA members who are not
members of AAGPS.

Accurate and Encourage Specialty Certification

It has been proven that Specialty Certification can enhance
and expand our membership. If it worked with the
petroleum geologists it may work for other groups such as the
Geochimists, Geophysicists, Mining Engineers, etc. It is therefore recommended that we issue
certificates to our members who are also members of the Division of Professional Affair of AAPG to
name them to be members of the American College of Petroleum
Geologists. Likewise, we should encourage our members who are members of other geologic bodies to
qualify for an organization similar to DPA of AAPG. Then those
groups could receive certificates declaring them to be members
of the American College of Exploration Geophysicists or whatever they happen to belong to. These certificates would, of course, have
our name on them. The fact that they might emulate the high standards of the American College of Urologists could not hurt us too badly.

Professional, Adjective or Name

For the last twenty years, geologists have been
bombarded by professional titles the formation of
AAGPS, professional competence and professional standards
were discussed with little being done to aid the geologist or public. At the present time the engineers use the term in their name and
licensing. Lawyers, medical doctors, accountants and
many others do not.

In light of the paragraph on Public Confusion on
Geological Certification which recommends amalgamation of
the existing CPG meanings into Certified Public Geologist,
it is recommended that the name of our organization be
changed to the American Institute of Certified Public Geologists. There are other factors involved beside the
redundancy of the present name. Many geologists who will
never use us for reasons or another, resent the
implication that they are not professional. Furthermore, the
engineers who use the term professional have not done
as much with certification. They have depended almost
solely on registration and accreditation for their profes-
sional emphasis. On the other hand, the medical, legal
and accounting fields have kept certification and registra-
tion intact as part of their professional status. A comparison
made by the public because of the similarity of
Certified Public Geologist to Certified Public Account-
ant it would put us in higher esteem than if we were
compared to professional engineers.

It is also recommended that the Sections be named
for the State or States where they are located, such as the
Texas Institute of Certified Public Geologists. It
would sound much better, and more well received in
public statements to speak for the Colorado Institute of
Certified Public Geologists rather than the Colorado Section
of something. It would also sound better to your friends and the public to be an officer in the California
Institute of Certified Public Geologists than an officer
in the California Section of something.

When we are trying desperately to get geologists
before the public and government, every little bit
helps, and we think that this recommendation will help
on both the national and local level.

Other Word Stigmas in Professional Geology

The move to define the professional practice of
geology began 17 years ago when the most dedicated of all professional geologists, Ben Krzywy, wrote a presidential
address "Attributes of the Geologic Profession" at the Annual Meeting of AAPG. That year you could clear
the convention hotel lobby by trying to discuss any of three subjects - certification, registration or most
assuredly, accreditation. Now certification is an
accepted fact, in fact, is the latest approach to the solution of conc-
averse among geologists, but the time for accreditation
has not yet come. Why? It can't be because there 'ain't no such thing'. The legal profession, medical doctors,
chemists, engineers and others have it. Many in the
geological profession simply say that the cost is pro-
hibitive. That was the consensus of this committee.

However, a study has never been made to determine what
the initial and maintenance cost would be. Some of our
members think that cooperative evaluation is grand. This
might possible be because it isn't working. In twelve
years we have cooperatively evaluated less than one school
per year. This is hardly an indication of a viable
profession and there are all sorts of problems. The problem will forever be up in the air until all of the
facts of the matter are known. It is recommended that
the Co-operative Evaluation Committee be charged, with
the assistance of the Executive Director, to investigate
how other organizations constructively evaluate and
recognize schools. So, the cost, manpower require-
ment should be determined. Then, if the money and
manpower becomes available, the Executive Committee, the
Advisory Board or the Co-operative Evaluation Committee
make a decision based on a thorough knowledge of the
requirements. It would be extremely counterproductive
to make a concerted effort to revitalize the Co-operative
Evaluation Committee if the way was not clear to completely
accomplish the purposes of evaluating schools. Someone
is charged with the evaluation of geological licensing acts. It is conceivable that if we cannot
accomplish this, someone else will do it for us.

Contact With the Membership

There is a tendency in any national organization for the
Executive Committee to be too enthralled in the
business of things to properly assess the feelings of the
widely scattered membership. The first recommendation in this regard is that committees are sent to the
membership and in those cases we ask some questions. This can be specific
questions that can be answered yes or no, for or against.
Also a space for members should be available for the
things that the Executive Committee or Advisory Board
may not have thought about.

The second recommendation on contact with the membership involves a poll of the membership of the recommenda-
tions made in this report. It is the opinion of this committee that all of the recommendations have wide
support of the general membership. If this is true, the
Executive Committee and Advisory Board could take this
under consideration in making any decisions regarding this
report.

Sunset Policy

In Colorado and other states there is a sunset law
that requires the state government to review licensing acts, boards and other units of government to determine whether each unit is still serving a worthwhile service to the state. It is recommended that
the Executive Committee or a Committee on Committees review the various boards and committees of AAGPS
to determine the same thing and either terminate or reorganize such units that are not accomplishing
worthwhile services. These meetings are just so many people that have the time to serve on any committee and only the most productive should continue.

Conclusion

In spite of the fact that many changes have been
recommended in this report, it should not be thought that most committees and boards in AAGPS are functioning well. The dedicated people who have given much of their time to serve on committees should be commended. The same is true for the wonderful work that is being
done by the State Sections. Particularly noteworthy is
the testimony and policy statements before governmental bodies through the Legislative and Regulatory Committees. We must get involved in legislative matters and public affairs. In this respect, APGS is doing great.

Respectfully submitted:

Plans and Programs of the Future
Edward E. Rue, Chairman
Allen F. Agnew
Thomas R. Beveridge
Achill H. Honkala
Henry H. Neel
William A. Newton
L. L. Sloss
Sherman A. Wangerd

-ooOoo-

The Policy Board was established last year and reported the deliberations of the first year of operation to the Executive Committee at the annual meeting in San Antonio. The Board consists of two representatives from each of the following societies: AAPG - Arthur H. Trowbridge and W. Dean Crafton; AGS - Richard H. Jahnz and Jack A. Simon; AEG - N. M. Ravneberg and Richard W. Lenke, Chairman and SEG - Sidney W. Schoellhorn and Norman J. Christie. The annual report of the Board lists 20 subject items pertaining to policy presented to the Executive Committee. Evaluation by the Policy Board at the time of the annual meeting reduced the subject items to seven, with some modifications, that were considered most suitable as program elements for the Policy Board to implement. They are listed below according to their priority assignments by the Board.

Recommended Program Elements of the Policy Board

First Priority

1. Develop strategies and mechanisms for effective input of geology in appropriate legislative policy deliberations and other decision-making actions at local, state and national levels. Advise Member Societies of any conflicts that might exist so that a reasonable coordinated submission of ideas by APGS and/or Member Societies might be achieved.

2. Consider mechanisms for assuring that state registration of geoscientists does not have serious impact on mobility of practitioners or that constraints on universal practice are reasonable.

3. Promote the concept that APGS standards for membership which are roughly equivalent to existing and proposed legislative requirements for state geoscientists, are indeed equivalent and, therefore, could provide the alternative to registration or licensing by state boards.

Second Priority

4. Have APGS act as a clearing house for information concerning government actions at both federal and state levels, if practical.

5. Learn which environmental organizations and individuals are actively working at cross purpose to the concepts generally held by APGS and Member Societies in respect to mineral and energy development and develop strategies for countering the adverse actions of these groups. In addition, develop strategies for submission relating to government appointments to insure that appointees have expertise in the subject field.

6. Encourage local chapters of affiliated societies to help determine what the policy of APGS and Member Societies should be in respect to warning the public of possible natural and man-made geologic hazards.

7. Encourage local chapters of affiliated societies to develop methods for effectively working with school children and their teachers which will result in a better understanding by them of the important role that geology plays in their present and future existence.

-ooOoo-


The APGS is not a member of the Engineers Joint Council and is not listed as an Associate Society on their letterhead. Nevertheless, APGS has participated in some of the Council activities in the past and we were invited to review, comment, and vote on their Proposed Second Edition of the Guidelines to Professional Employment for Engineers and Scientists. This Proposed Second Edition has been developed by an Intersector Committee for Professional Employment Guidelines in response to specific suggestions from one of the member societies and guidelines with the intent that the first edition was issued in January, 1973 to periodically review and update the guidelines.

Among other things, it was suggested that more specificity regarding quantification of employee benefits be included. The proposed Guidelines should be promulgated as establishing minimum standards of employment. The Ad Hoc Review Committee sent a questionnaire to corporate affiliates of the Engineers Joint Council to ascertain the characteristics of existing benefits packages, and the results of that questionnaire are incorporated with the Proposed Second Edition. Upon analysis of the Report on Employee Benefits, the Review Committee recognized a wide range in character and emphasis of benefit packages with significant variations occurring between different kinds of employers and industries. The Review Committee decided, therefore, not to increase quantification of benefits in the Second Edition of the Guidelines.

The Review Committee also rejected the suggestion to write the Guidelines in minimum standards for reasons similar to those expressed above and because of a prior vote by the Ad Hoc Review Committee to reject that suggestion. The Review Committee has, instead, written the Proposed Second Edition with an eye to improving employer acceptance and hence implementation. The intention is reaffirmed that no further guidelines should remain broad statements of principle.

The Guidelines summarize the conditions leading to mutually satisfying relationships between employers and professional employees. A number of statements referring to the responsibilities and expectations of professional employees and employers are listed under each of the broad topics of Recruitment, Employment, Professional Development, Termination and Transfer. The "communication" theme runs through most of them; employment relationships will result in maximizing reward to both parties when a frank and open understanding of responsibilities and expectations prevails.

It is anticipated that the Guidelines will be used by employers in evaluating their own practices, by professional employees in evaluating their own responsibilities and those of their employers, and by new graduates and prospective employees in evaluating their prospective employers.

The Proposed Guidelines seem to me to be a reasonable statement of the principles governing an effective employer-employee relationship. They take cognizance of the employer's viewpoint as well as that of the professional employee, and allow a great deal of latitude to accommodate differences in practice between professional specialties, employers and industries. They should be neither bellicose nor namby-pamby, and should command consideration from reasonable professionals and employers alike.

I recommend that the National APGS endorse the Proposed Second Edition of the Guidelines to Professional Employment for Engineers and Scientists as revised October 14, 1977, and notify the Intersector Committee for Professional Employment Guidelines of the Engineers Joint Council of that action.

Respectfully submitted:

/#/ Ralph Kaspach, Chairman
Professional Employment Standards Committee
(Annual Report of the Environmental Geology Committee, Peter Lessing, Chairman)

I. Accomplishments:

The Environmental Geology Committee, composed of Pete Briggs (PA), Hugh Montgomery (PA), Murray McComas (OH), Ben Wetmore (NV), and Peter Lessing (NV), met six times during 1977. Our effort resulted in a symposium entitled "Geologic Hazards and Land Use." Reports from those attending rate it as successful.

II. Problems:

1. Operating without funds is a severe limitation.
2. Committee members spread over the country severely limits interaction or significant accomplishments.

III. Recommendations:

1. The committee chairman should be picked from a different part of the country each year.
2. The chairman should pick his committee members from individuals nearby for meeting purposes.
3. The committee should undertake one or two major items each year (eg. conference, field trip, publication, etc.).
4. The committee might join forces with Reg. and Leg. or Public Affairs committees for a major program. They could also work with SSA's Environmental Geology Group.
5. The committee should avoid duplication of other committees or projects undertaken by Associations, Societies, Geological Surveys or others.
6. The publication "Earth Resources as Foundations for Environmental Planning" needs revision.

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STATE SECTION NEWS

Colorado

(The following letter from A. Saterdal to Dean Kleinkopf, President of the Colorado Section of AGUS, is self-explanatory. The contents of the letter was of particular interest to the Executive Committee in their pursuit of better PR work by the Association)

November 29, 1977

The Executive Committee
Colorado Section, AGUS
1516 California Street
Suite 505, Colorado Building
Denver, Colorado 80202

Attention: N. Dean Kleinkopf

Gentlemen:

For your information I would like to emphasize my conclusions as a result of the work of our Committee for Effective Political Action (also known as the Public Information Committee) Colorado Section AGUS during the past six months. You have previously been provided with copies of all correspondence with our Congressmen, The Denver Post, KMGR-TV (CBS), and several Colorado Legislators;

1) Based on observed response, our letters to the editor of the Denver Post have been the most rewarding of all of our efforts. Responses have been generally favorable and appreciative. The Post has encouraged the letters and has printed them all (3) without editing. It has further encouraged an extensive question-answer situation regarding the energy controversy. We have had several reader requests for the support data for our positions - as we offered to supply in our letters.

2) In nearly all cases where we have written to Congressmen, Coloradans and others, we have either failed to receive any timely response or we have received form letters which in no way adequately answered our detailed questions. The one exception is Congressman William Armstrong, Fifth Congressional District, Colorado, who has invited our committee to a meeting on December 1. My personal conclusions are that Congressmen in general pay very little attention to individual letters and that they regard these letters as purposeful mainly because they allow the writer to "blow off steam." Their replies are insipid, evasive and leave one with the impression that they must be answering some other letter. If such dialogue is indicative of how our system of representative democracy works - it's not working.

3) No less an expert than Representative Tip O'Neill of Massachusetts, House Majority Leader, has indicated that 50,000 letters to his desk mostly opposed to "situs picking" caused the defeat of this "sure thing" legislation. I believe that we can stimulate at least some of this type of response by educating the public and our members to the long range effects of legislation in our areas of knowledge (as opposed to the "cheap shot" vote buying - often only short term favors offered by many of our political leaders). The demagoguery of the likes of Henry Jackson (obscene profits); Ted Kennedy and Floyd Haskell (unjustified tax breaks); Schlesinger (greedy oil men, not satisfied with adequate incentive - they want it all); Jimmy Carter (doctrine of "fairness"); and the inaccurate statements of S. David Freeman, formerly on Carter's energy staff, and of John P. O'Leary and George R. Hall of DOE can be and should be aggressively confronted by using readily available factual data of the type we have already gathered.

To this end I urge that immediate steps be taken to form a cooperation of AGUS State Committees for the purpose of collecting data and credible opinions relating to matters of concern to the AGUS. This knowledge would then be used to refute erroneous statements from an unproductive or harmful legislation and to support productive legislation in fields where we have knowledge and concern.

I urge that members of these committees prepare written statements for presentation to newspapers, television stations, and for live audience addresses (civil jobs, etc.), and for presentation to national and state legislators. We should learn of and work with all other responsible organizations to expand our exposure to voters. To be effective, emphasis should be stressed on presenting our information with a perspective so as to show the maximum numbers of listeners or readers why our position is best for their long range good. In all cases, we should suggest that readers write their Congressmen and suggest positions to be taken or questions to be asked.

I believe it is important that the various State Committees formulate some general and some specific objectives, that we regularly exchange prepared statements for public use, and that we provide each other with important information. The effort should be guided by a member with national recognition, if possible.

If we could have at least ten dedicated members in ten separate states to start working on the project within thirty days, I believe we would see the fruits of this labor within six months which will be a significant factor in some of the elections in 1978. Numbers are important, so we should especially attempt to get representation in some of the larger states.

Respectfully submitted,

/s/ A. Saterdal, Chairman

Political Action Committee

(Public Information Committee)

Kansas

The 1977 annual meeting of the Kansas Section was held October 28, 1977 in the Petroleum Club, Wichita, Kansas. There were 10 members and one guest, and 10 members represented by proxies.

The section membership growth was reflected on the section members 20 on January 1, 1977 to 40 as of October 28, 1977. Discussion was held regarding personal contact with geologists who are eligible to obtain membership by reelection, and members were urged to contact these potential members before the January 12 deadline.

The new officers for 1978 were introduced at the meeting. They are Robert W. Frensley, President; George R. McNeil, Vice President; and Harold A. Brown, Secretary.
It was moved by Verne E. Dow and seconded by Bob Frenselley that the Kansas Section give a $100.00 scholarship each year to a junior or senior majoring in geology. The award to be made on a rotating basis starting with Fort Hays State, followed the second year by Wichita State, third year Kansas State and fourth by University of Kansas. The scholarship will be awarded in the fall following and paid equally in half in the fall semester and the second half in the spring semester. The motion was carried unanimously.

Verne E. Dow led a discussion on licensing and registration of Professional Geologists in Kansas. The problems facing the petroleum geologist is in some respects different that those in engineering geology but it was agreed that legislation should be prepared rather than waiting until the last minute when the requirements could be written by someone other than a geologist.

This was a most productive meeting regardless of the small attendance, but the feeling was unanimous that the Kansas Section is finally "over the hump" and ready to become an active voice on the Kansas geological scene.

Oregon

The Oregon Section elected the following officers at a meeting held on November 17, 1977; Salem M. Parooqui, President and Richard C. Kent, Secretary-Treasurer.

The State of Oregon Geologists Registration was passed on July 21, 1977. Applications for registration without written examination will be accepted for one year and reciprocity is in effect. Further information can be obtained from:

Board of Geologists Examiners
State of Oregon
Department of Commerce
425 Labor and Industries Bldg.
Salem, OR 97310

Montana

The Montana Section has nearly 75 members and is growing at a rate of about two applications per month. The membership represents a wide range of geological scientists engaged in energy mineral, mineral, geological education, water resource, and environmental geology activities in Montana.

To meet the objective of a well-attended annual section meeting, for the past several years the meeting has been held in mid-January after the national meeting and the holiday season. This meeting time has offered a good record of attendance of members from even the most distant parts of Montana. This year the meeting will be in Bozeman.

The Nominating Committee has selected subject to membership in Montana for 1978 for installation at the January meeting:

Frederick McCotter, President; Gilles E. Walker, Vice President West; David J. Kull, Vice President East; and John J. Tonnson, Secretary-Treasurer.

Members of the section have participated in a number of speaking and public relations activities during the year. Currently the section is reviewing a film series produced by a major petroleum company. This has been an interesting endeavor because the full series presents a balanced viewpoint regarding energy policies, but certain individual episodes can be taken out of context. The film has prompted a lively correspondence with the producers of the series.

The section will soon publish its directory with bibliographic information and photographs for each member. The directory will be sent to state and federal agencies, legislative advisory councils and appropriate individuals and associations to provide information regarding the membership, aims and services available through the Montana Section AGS.

West Virginia

The annual meeting of the West Virginia Section was held on October 28, 1977 at the Lakeview Inn and Country Club in Morgantown. A number of members came present along with four guests and one applicant.

The following talks were given: Ken Wilmorth; Water for flood victims in southern West Virginia;

Carl Smith: The federal strip-mine laws; Tom Hemmings: Archeology and geology, and Bill Harfield: Soil Conservation Service activities.

A business meeting followed in which several business items were discussed including a discussion of the evaluation of the registration bill, obtaining new sponsors and resubmit all to the 1978 legislature.

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EXECUTIVE RECRUITMENT ANNOUNCEMENT - USGS

The USGS is accepting applications for the position of Chief, Conservation Division, USGS, Reston, Virginia. The description of duties is as follows:

The Chief, Conservation Division with the assistance of the Associate Chief and through supervision of four Assistant Division Chiefs, the Division staff, and four Regional Managers carries out the responsibility for planning and directing a natural resources regulatory, evaluation, and conservation program of national scope and significance. Principal duties and responsibilities include: direction of a national program to establish and enforce regulations for control of industry development and production of minerals under Federal and Indian leases, the development of new or revised standards for technical performance in lease management across the nation, and the establishment of controls to prevent environmental degradation which may result from industry exploration activities; directing activities governing the identification and retention, under Federal ownership or control, of mineralized or potential minerals lands containing leasable minerals; and involving mill and ore processing, and public domain, much of it withdrawn from entry awaiting mineral classification, and the onshore production of coal, oil, gas, potash, phosphate, precious minerals, sulfur, and other leasable minerals; coordination and control of activities concerned with developments in the Outer Continental Shelf (OCS) -- in the Gulf of Mexico and off the coast of California. (The full potentialities of the development of the offshore mineral deposits, principally oil and gas, but also heavy metals, phosphate, sulfur, sand and gravel, and manganese, are still unknown, but the Division's workload, by reason of that development, is rapidly increasing. The incumbent also serves as consultant to the Director and to the Secretary of the Interior and to agencies and officials throughout both the public and private sectors on national policy matters affecting development and leasing of Federally owned or controlled mineral and water power resources. He/she also represents the Secretary of the Interior or participates with the Secretary in public hearings concerning the formulation of Departmental policies, legislation or regulations related to conservation, leasing and development of Federal mineral resources.

The position is to be filled at the GS-14 ($49,696) or GS-15 ($58,245) level. The basic pay, however, is limited by Section 5309 of Title 5 of the U. S. Code to the rate for Level V on the Executive Schedule which cannot currently exceed $47,500 per annum. Complete information is available on Vacancy Announcement 77. No closing date is indicated at this time. Any non-USGS applicants should contact the Office of Personnel, USGS, Mail Stop 215, 12201 Sunrise Valley Drive, Reston, VA 22092 Phone: 703-660-6131 or FTS 928-6131.

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MEETINGS AND CONFERENCES

Uranium Geology and Exploration Short Course

A three-day short course in Uranium Geology and Exploration is to offered twice, March 15-17 and May 24-26, 1978, by Dr. Richard B. DeVoto of the Colorado School of Mines. The course covers: a) the geochemistry and geology of uranium, b) the mechanisms important in the generation of anomalous uranium concentrations, c) the many geologic environments favorable for the formation of economic and sub-economic uranium deposits, and d) exploration techniques and programs.

Registration fee is $300 and for further information regarding the course, contact the office of Continuing Education, Colorado School of Mines, Golden, CO 80401 or telephone (303) 279-0300 ext. 321.
Applied Ore Microscopy

The 6th annual short course in Applied Ore Microscopy is being offered by the University of Missouri-Rolla February 13-17, 1978. It is an extension activity of UMR's department of geology and geophysics.

The course is designed for geologists, metallurgists, mining engineers and others who need a thorough knowledge of the fundamentals of the ore microscope or who desire to extend their capabilities in the reflecting microscope study of ores and selected mill products. Dr. Richard Hagni, AFGS member, and professor of geology at UMR, is course director.

Because of the number of microscopes available for laboratory study, enrollment is limited to the first 12 individuals making application. Registration fee is $350 per person and will include instruction and educational materials, polished section mounting materials, use of microscope and sectioning equipment, coffee breaks and a banquet ticket.

To register or for further information, write or call: Bill Kratzer, Extension Division, University of Missouri-Rolla, Rolla, MO 65401 (Phone 314-341-4200).

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Second Biennial Short Course on the Fluvial System With Applications to Economic Geology

The five day course (with one-day optional field trip) is run by the Colorado State University, Fort Collins, Colorado. It is designed for geologists who are interpreting the characteristics of ancient fluvial deposits and predicting behavior of rivers for economic, environmental and scientific purposes. The fee for the course is $350.00 ($20.00 for the optional field trip) and will be run by a staff of four from Colorado State and four guest staff. For a comprehensive brochure, write the Office of Conferences and Institutes, Rockwell Hall at the university.

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AFP-SEPM Annual Meetings (International)

1978 - April 9-12 Oklahoma City, Oklahoma - Myriad Convension Hqtrs. - Skirvin Plaza and Sheraton Century Hotels - CO-Hqtrs Hotels. More than 250 paper including over 30 from AFP's new Energy Minerals Division featuring nuclear minerals, with emphasis on uranium, geothermal energy and coal, tar sands and oil shale development. Contact AFP Convention Dept. P.OB 579, Tulsa, OK 74101

1979 - April 1-4 Houston, Texas - Albert Thomas Convention Center, Gulf Hotel, Hqtrs. - Hyatt Regency, Hqtrs Hotel.


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AAG Section Meetings


1978 - April 26-29 PACIFIC SECTION - Sacramento, Califonia - Red Lion Inn, Hqtrs. - Gen. Chm.: James Weddle, 2931 Lacy Lane, Sacramento, California 95821

1978 - Oct. 15-17 EASTERN SECTION - Cleveland, Ohio - Hollenden House, Hqtrs. - Gen. Chm.: Ronald Manus, Kent State University, Department of Geology, Kent, Ohio 44240


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PROFESSIONAL PARAGRAPHS

The chairman of the Interstate Oil Company Commission has named Acting State Geologist and Oil and Gas Supervisor Thomas J. Joiner, CGS 2018, to a four-man committee to help the Federal Energy Regulation Commission define new petroleum reservoirs within the context of the National Energy Policy Act.

The Act provides for price incentives related to the recovery of new petroleum reserves. The basic definition is for a well that is more than 1/2 mile from an existing well, with a difference in depth of more than 1,000 feet.

There is a provision that if state regulatory agencies recognize and certify the existence of a new reservoir, then it might be entitled to price incentives regardless of distance or depth.

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IS NATIONALIZATION OF THE MINERALS INDUSTRIES A VIALBE POSSIBILITY?

Hon. Robert C. Krueger Congressinan 21st District Texas

I should begin by stating that nationalization of the mineral industries is not a viable possibility today. However, pro-nationalization sentiments do exist among some quarters and we never know what the future may bring. Let us examine some of the complex political and economic issues raised by the possibility of nationalization.

The very facts that we are concerned with this issue reflects some disturbing trends. First, the increasing complexity of public problems such as the need to control corporate power and the need to solve the energy quagmire has prompted many people to seek solutions in the realm of nationalization rather than reason. Indeed the desire for nationalization may spring from frustrations -- understandable frustrations -- bred by the feeling of powerlessness we all experience when confronting enormous corporate giants (and wanting to know who is accountable) and when attempting to understand the energy situation (and wanting to somehow retrace our non-renewable resources.) Of course, nationalization will not solve the problems of unaccountable power and finite resources. However, I suspect that nationalization coupled with emotional appeal to those who yearn for easy solutions to these problems. In an age in which government is confronted with complex, managerial decisions, many people would rather opt for simplistic responses (or apathetic responses) rather than careful reasoning. Fortunately, the majority of the American people reject simplistic solutions. Second, the idea of nationalization may intrigue some people because they believe that the faults of private enterprise -- or at least the natural evolution of corporate corruption, insensitivity to consumers -- may be overcome by the expedient of public enterprise. Unfortunately, public enterprises are no panacea. Public operations have polluted just as much (TV is the nation's dirtiest utility) and have been just as corrupt and insensitive to consumers as private enterprises. In fact, I suspect that government bureaucrats are far less responsive to consumers of government services than are private businesses to consumers of their services. I doubt many people would want those stations run by the same people who run the postal service! The fact that some proponents of nationalization have had little experience outside of academia and government may well explain their naive overstatement of the advantages of public enterprise. I have often thought that Congressional-executive branch staffs have been excessively dominated by professionals with little or no experience with the day-to-day economic concerns confronting the worker and businessman, and, as a result, many very influential people are characterized by an unrealistic faith in our ability to legislative and regulate problems away. If we ever reach the legislative threshold of
nationalization, some well-meaning Congressmen or staffer will suggest that the bill implementing nationalization include some mandate that the nationalized company act "in the public interest" and pursue "reasonable" policies. The reality, of course, is that a legislator can no more command that institutions pursue the public interest than an autocrat command the earth to yield up certain minerals.

We certainly cannot expect to win the battle against nationalization on ideological grounds alone. The American people are, fortunately, moved more by pragmatic concerns than by ideological sentiments. For example, although many people have a belief in free enterprise, we are not offended by public provision of highways, many utilities and national defense to name a few examples. The government may be the most efficient provider of these services. A private enterprise could not furnish the right amount of national defense because everyone would realize that he or she could benefit from the provision of national defense without paying for it and his or her individual contribution would probably be nil. The mineral industry certainly does not have to be nationalized for this reason; we can use the market system to allocate minerals.

Utilities are regulated because they are characterized by declining costs. In other words, we have some public utilities because they operate most efficiently if there is only one utility per market and we must regulate or own the monopoly in order to prevent monopoly practices. If all industries possessed economies of scale (the bigger they become, the less their unit costs) than more extensive government regulation, the fact that ownership may be warranted in order to prevent monopoly abuses. However, economic studies show that most industries do not have constantly declining costs for production does not mean that most manufacturing concerns decreases until the plants reach full capacity and then rise quite sharply. In the mineral industries, small firms have any advantages such as flexibility and lower administrative costs. The argument of nationalization do not even appear very concerned about economies of scale or possible monopoly abuses, in any case. One hears the call for a public company in the industry -- an industry in which there are far more competing firms than in most manufacturing industries -- far more competition than in monopolistic industry. In short, there is no clear "efficiency" basis for nationalizing the minerals industries. There are good reasons to suspect that nationalization would be extremely inefficient. The efficiency of public employees will probably cause inefficiencies. Incompetent managers and workers will be retained because of the inevitable patronage and firing and talented managers and workers will inevitably be given fairly standardized incomes. Compensation will be based on political criteria much the same way as in the national industry. Moreover, risk-taking will be discouraged. What bureaucracy would want to invest in new projects to the risk of losing the $100 million exploration program if, for example, there is a thirty percent chance that he will discover a $100 million mineral deposit? Although the private investor would surely be willing to take the risk for that expected value, the public bureaucrat knows that if he fails the project will be called a "boondoggle" and some Congressional Committee might "investigate" and hurt his career.

If the mineral industries were nationalized, there would inevitably be pressures to subsidize the consumption of the products produced. For example, I suspect that some Congressmen might be willing to have the government help finance a public oil and gas corporation (Harrington has proposed such a bill with several co-sponsors) and thereby lower the cost of capital of the corporation and subsidize the consumption of oil and gas. It would be a tragedy to subsidize the consumption of mineral resources and thereby artificially accelerate the depletion of mineral resources to the detriment of all future generations. There must be better ways of confronting the challenge of poverty in this society. It is the task of public enterprises at a point at which the supply available equals the demand available, a public enterprise would inevitably be pressured to set prices based on political criteria. Shortages and surpluses would develop.

I realize that these remarks strongly reflect my feelings against nationalization. I am proud, however, that my position is based on reasoning rather than some extreme emotional sentiments. If the American people are kept informed of the advantages and disadvantages of nationalization, I am sure they would share our views.

-0000- COMMUNICATING WITH LABOR THE ASPEN SEMINAR by Albert H. Wadsworth Consultant

I cannot overemphasize the degree of contempt that these people have for the oil industry in general. They look upon it as a monopolistic, money grabbing, non-competitive and miserly monster whose aim is to corner America's economic wealth. The fact that we know how grossly mistaken such an attitude is only emphasizes the extreme degree of our own omission of responsibility. Yes, that's right, as scientists we must share a large part of the blame. However, the attitude for which we need to fight is a fear that we can make the public aware of the real dangers we face.

We have been content to bask in our own glory, to pat ourselves on the back and we have lacked the professional pride to state our case which is just and right.

Into this vacuum of lethargy all sorts of mole, worms and demagogues have crept and in our silence the public hears only the voices of those who would use us as scapegoats to mask their own purposes - and I have long pondered what those purposes really are.

It is true that we have lobbied in Congress, we have talked a great deal to each other and a handful have made a genuine effort at public education with excellent results. I am told by those people that the story's stories have received wide acceptance because they went to the people with the truth islands just to politicians. We must take our message to the people themselves we will see some changes in Washington.

We need a nationwide public education program supported by all of the industry, not just one company or one organization - something similar to what DuPont uses to do - "a better world through chemistry". Why not a better world through geology? We deserve such a slogan. We see weekly programs on how heroic doctors have saved everything from life to broken marriages and we learn how altruistic lawyers can right all wrongs without charging a fee. We have a fascinating story to tell and it will have something to say that will make you wonder. For some reason, we and our executive leaders have been afraid to be publicly visible. In remaining invisible, the public has come to believe that they have something to hide. Everyone knows who James Schlesinger is, but if we polled the same people we could not even remember the name of the head of our 10 biggest oil companies. Yet compare the knowledge that anyone of those men has about energy with that of the man on the street...and you will get a measure of the shortfall of our public relations.

Full page newspaper ads and congressional lobbying have helped but they are not going to do the job. We must reach a wider audience on a broad scale at all times. It will take knowledgeable writers and producers and a great deal of money. But it is a firm belief that if a concerted effort were made by the leadership of our scientific organizations that the API or some other industry wider spurious might be able to locate some of those famous windshield profits.

-0000- COMMUNICATING WITH CONGRESS AND THE PUBLIC: AAGF EFFORTS AND EFFECTS by Edd R. Turner, President AAGF

As energy considerations by Congress and Federal agencies became much more sensitive in the last half of 1976, AAGF abandoned its traditional stance of professional aloofness and engaged a public relations firm in Washington, D.C., with the object of guiding AAGF representatives to those places where our views on energy and the petroleum industry could best be presented. Our prime purpose was to provide factual energy data to those responsible for developing a National Energy Policy. This approach stands in marked contrast to the popular concept of "lobbying".

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It is an established fact of life that one cannot just go to Washington expecting to be welcomed into Congressional or executive offices without some sort of advance contact. Accordingly, AAPG engaged the Daniel J. Edelman, Inc. public relations firm on a trial basis in October, 1976, and has completed a second year of Washington representation by that firm.

One of the first tasks undertaken was to compile a media mailing list from AAPG, APG and Edelman staff sources. This list of some 1100 names includes Washington area and nationwide media, trade press, and journalists specializing in energy, science, business and other related fields.

It was not until January, 1977, that press releases generated by AAPG and Edelman garnered acceptance by the media. At that time, The Washington Evening Star, a newspaper made by then president John Moody which appeared in various trade journals as an AAPG prepared article on the gas shortage during the winter of 1976-77.

Through the Edelman company, an invitation to attend a Washington Press Club dinner in January, 1977, was extended to the AAPG President and Executive Director. It was at this dinner that our Executive Director talked with Dr. James Schlesinger and offered to arrange for AAPG members to meet with the Energy Advisor's staff in an attempt to contribute our professional views to the preparation of the National Energy Plan. Two follow-up letters relating to this personal contact were delivered to the Energy Advisor. It was not, however, until June 10, 1977, that an appointment was granted, weeks after President Carter had declared the energy war and the National Energy Plan had been published!

Delay in scheduling this meeting was attributed by the administration to the fact that a person to handle such matters had not been hired by the Energy Advisor's office until the last week in March. The June meeting with a member of the Energy Advisor's staff proved to be a brief audience with a third level functionary whose lack of knowledge of energy and the petroleum industry frankly astounded the five-member AAPG delegation.

Regarding overall impact on current energy legislation, it is felt that AAPG input helped soften the 2½ mile-1000 feet deeper new gas classification, a revision, however, that appeared only in the House energy bill version.

Continued efforts handled through our public relations firm resulted in the following contacts and appearances:

February 9, 1977: An energy discussion spot on the NBC-TV Today Show was arranged for AAPG President John Moody. Another spot was filled on October 5, 1977 by AAPG President Ed Turner during the Senate energy bill debate.

February 9-10, 1977: Interviews were held between the AAPG President and the National Observer, U. S. News and World Report, U. P. I., Time, Changing Times, Oil and Gas Journal, Knight newspapers, and the Baltimore Sun. These were primarily factual insert interviews rather than personal feature contacts.

March 24, 1977: The AAPG president appeared before the House Energy and Power Subcommittee of the House Commerce Committee. Meetings were also held with majority and minority staff members of the Senate Committee on Energy and Natural Resources.

April 13, 1977: The AAPG president, executive director, and two other members held a briefing meeting for the staff of the Senate Committee on Energy and Natural Resources. Fourteen staff members attended.

April 19, 1977: The AAPG Secretary testified before the Senate Committee on Energy and Natural Resources on S. 9, the Outer Continental Shelf Lands Act.

May 2, 1977: A second interview with a Time reporter resulted in an article published this date quoting the AAPG president.

May 24, 1977: The AAPG president testified before the House Ways and Means Committee on tax implications of the Administration's energy proposals. The executive director also supplied a statement which was presented to the Committee.

June 12-16, 1977: During the AAPG Annual Convention in Washington, DC, a press conference was held with CBS-TV coverage. Reporters from Time, National Observer, the Oil and Gas Journal, U. P. I. and A.P. attended. Part of the CBS film was used the next day on CBS morning news nationwide. In addition, wire services had stories on the convention and wire releases. A fine article was published in the National Observer.

As part of the AAPG governmental relations activity during the Annual Convention a reception honoring AAPG member Senator Harrison Schmitt was held in the Senate wing of the Capitol Building. Nineteen Senators and Congressmen attended, although their presence was sporadic due to votes called and both Houses were in session on that particular evening. In addition to the Congressmen, sixteen Congressional aides and committee staff members were present. It is difficult to measure the value of such a gathering another than its service in establishing the organization's presence in Washington. Industry representatives did attend, most of the legislators who made an appearance had previously demonstrated their support of the industry views on energy.

On the last day of the Annual Convention in Washington, lengthy interviews were conducted by a reporter from the Washington Post with the AAPG president and other members. As a result, an in-depth energy analysis quoting the AAPG president was published and nationally syndicated. The tenor of this article showed how effective AAPG can be in getting the geologist's point of view across.

Continuing AAPG governmental communication has been handled by committee activity (which will be reviewed presently), programmed press releases of statements relevant to energy event and abstracts of speeches made by the incumbent AAPG president. Recent interviews or briefings sessions have been held with the Wall Street Journal, New York Times, Business Week, National Post and Seattle Post - Intelligence.

One of the most widely quoted press releases issued by Edelman has been the commentary on "energy crisis and oil glut" describing the West Coast oil trans-shipping problems. Excerpts from the article were still being quoted in newspaper editorials comments over two months after the original release.

Although some editors demand use of a press release on the day a speech is made, we learned through our clipping service that parts of our press releases shows up weeks after issuance in such diverse locations as Boise, Des Moines, Rapid City, Seattle, Montgomery, Calgary, Sheboygan, Ptoe (Tennessee) and just about every small town in Texas. Actually this is precisely our general aim: to supply correct, factual energy data, rather than to generate headline statements.

Certainly we regard this dispersal of information as evidence that our public relations is succeeding. It is AAPG's plan to continue until such time as we are convinced our story has been told and understood.

Now, to review as promised the first phase of our communications program. Two committees -- the Public Information Committee and the Strategic Committee on Public Affairs -- have been formed. The former, which is a cooperative effort with other associations, have played a part in our governmental and public communications effort.

Public Information Committee: In mid-1977, this AAPG committee completed our "Speakers Kit" and sent a copy to all 52 local affiliated geological societies in the United States and one foreign association. Since issuance, an additional 51 copies have been sold at cost to companies, individuals, schools, etc.

The kit includes 49 slides on energy data and facts plus fill-in cartoons and illustrative photographs. Narrative explaining each slide is printed in the kit so the speaker can cut and paste and build a presentation using his selection of slides. Use all of the slides in one presentation is not recommended, as a choice of slides to describe a particular energy situation would be better received by local groups or clubs.

It is still too early to evaluate the effectiveness of this project, though such comment as we have received has been complimentary.

Strategic Committee on Public Affairs: The SCPA was established about four years ago initially to provide a means for factual reporting to the one hundred U. S. Senators. It was thought at the time that unbiased energy information and policy statements could best be supplied on a personal basis to these lawmakers,
who are probably the most powerful 100 citizens in the United States.

Later, as more programs go, it was increased to include the 425 Representatives and, in addition, governors of the fifty states. AAGP has prepared some six background papers plus six information bulletins, with updates when required, which have in turn been transmitted either by the communicators themselves or by direct mail to the above listed. There is only about 50 percent coverage of Congressmen by AAGP communicators; however, because there simply are no AAGP members in some non-energy producing states who know Congressmen well enough to serve. Nevertheless, all of our policy statements have been sent to all Congressmen and governors, and, hopefully, it has done some good.

Energy Seminars: During the last two years AAGP, joined by API, BCG and SPE, has conducted energy seminars for the media in five locations: Pacific Grove, CA; Boarston; Columbus, OH; Chicago and Washington, DC, and plans are underway for a seminar in December for media members in New York City. These seminars cover the U.S. energy sources, energy technology, and investment incentives. The media contacts have varied from very good to, in one instance, very disappointing.

The highlight of the seminar program was the two sessions in Washington, DC this past summer that attracted 129 staff members representing 15 Senators, 50 Representatives, and 11 Congressional Committees. Each of the four professional seminars included a target audience of at least 35 members who could benefit from a presentation on their specialties in energy, exploration, and production, as well as answer questions during the rather lively question and answer periods that followed. Those periods were probably as valuable as an educational medium because Congressional staff people are, for the most part, young university graduates with little background knowledge of petroleums and related energy industries.

It should be quite evident that AAGP's initiative of programs as ambitious and complex as these I have just outlined for you imposes a tremendous additional workload on all of us who are involved in their planning and implementation. However, neither as an organization nor as individuals can we afford passively to ignore the crises which today confront and shape the future economy, social, political, and philosophical implications of these crises if left unmitigated. We in AAGP intend to continue disseminating factual information to the public and to the government until such time as the critical issues pertinent to our national energy program are fairly resolved.

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BALANCING THE TWIN IMPERATIVES---
ENERGY AND THE ENVIRONMENT
by Charles D. Matthews
President, National Ocean Industries Assoc.

When John Taylor and Tom Barber asked me to come down here to San Antonio to talk with you about energy and the environment, I didn't realize there would be so many Noah's in the audience. Therefore, I am going to cop-out and limit myself to a discussion of the subject from a perspective where I feel more expert—Washington, Congress, and the legislative process. Do you all know what an expert is? In mathematics, "X" is the sign of the unknown, and a spurt is a drip of water under pressure. Therefore, an expert is an unknown drip under pressure.

So, I will talk about energy and the environment in terms of a piece of legislation now pending in the Congress---H.R. 1614, amendments to the Outer Continental Shelf Lands Act.

Limitations on our time this afternoon and the very complex nature of the bill will not permit an in-depth discourse on all the provisions which should be of concern to professional geological scientists. So, let me give you a broad background on the bill as contemplated in H.R. 1614 which, I believe, would retard or misdirect necessary offshore development of domestic energy supplies.

The Arabs began to jolt America out of its comfortable energy posture with the 1973 oil embargo. If such a crisis were to occur, the President and Congress must act immediately. If they do not, we could face a full-scale energy crisis. In addition, the energy crisis has spilled over into the political arena. The Arab oil embargo has caused the United States to take a close look at its energy policy. The President's energy proposals are designed to help alleviate the shortage of energy supplies. However, the proposals are not perfect. They contain some provisions that could have a negative effect on the environment. For example, the proposals would increase the amount of oil that is produced from offshore areas. This could have a negative effect on the environment, because it would result in the destruction of wetlands and the destruction of wildlife.

The proposals also contain some provisions that could have a positive effect on the environment. For example, the proposals would increase the amount of conservation that is done. This could have a positive effect on the environment, because it would result in the conservation of energy.

In conclusion, the President's energy proposals are designed to help alleviate the shortage of energy supplies. However, the proposals are not perfect. They contain some provisions that could have a negative effect on the environment. For example, the proposals would increase the amount of oil that is produced from offshore areas. This could have a negative effect on the environment, because it would result in the destruction of wetlands and the destruction of wildlife.

Would you believe that?

H.R. 1614 would require the Secretary of Interior to stop offshore operations if such operations posed a "threat" to someone's "esthetic" sensibilities. Who will make this determination? I always thought that beauty was in the eye of the beholder. Esthetics is a subjective judgement. (Why some of us don't even happen
to like Picasso.) Furthermore, the secretary would have to stop production, if the operations would kill a fish. This is worse than the small darter stopping construction of a hydroelectric dam in Tennessee.

If you think that's bad, how about this one?

The new Section 20 on Baseline and Monitoring studies states in part: "Subsequent to the leasing and developing of any area or region of the continental shelf, conduct . . . studies to establish baseline information . . . which can be used . . . for the purpose of identifying any significant changes in the productivity of such environments . . .".

This proposal relative to environmental baseline studies shows a very serious lack of understanding -- on the part of the provision's drafters -- of the magnitude, severity, and priorities of the environmental world. Before the establishment of baseline information can be accomplished, one must establish a starting point acceptable to all interests. In a dynamic environment such as the oceans, this presents a real challenge. But, if we accept the fact that OCS production and transportation is safer than importing a like amount of oil, it follows that the mid-Atlantic area will become less polluted as OCS energy replaces imports. Why then should a study be initiated to prove what we already know? There will be an improvement in the environment.

Another provision of Section 20 states that in addition to developing baseline information, any study subsequent to the leasing of an area or region, to the extent practicable, shall be designed to detect impacts on the marine life resulting from (1) chronic low level pollution or large spills associated with Outer Continental Shelf production, (2) from the introduction of drill cuttings, and (3) from the laying of pipe to serve the offshore production area and (4) the impact of development offshore on the affected and coastal areas.

The first part of the section is to "predict impacts on the marine biota resulting from chronic low level pollution or large spills associated with OCS production" whereas such studies are being limited only to "production" and not "production and transportation?" If the exploration phase is excluded on purpose, and there is more than an ample justification to do so, the question must again be asked as to why baseline studies are required subsequent to lease sales and before exploration drilling?

On the subject of oil spills, the USGS conducted an extensive study about a year ago on oil spills in the Gulf of Mexico, Outer Continental Shelf between 1971 and 1975. The study was headed by Elmer F. Danenberger and released as USGS Circular No. 41. Beginning in 1971, all oil spills have been recorded by the USGS and a computer file has been maintained on all spills of one barrel or more so this was the beginning point for the study.

Danenberger reported that the total Gulf of Mexico OCS oil spillage recorded between January 1, 1971 and December 31, 1975, amounted to 51,421 barrels. In the same period, there were 35,219 barrels of oil produced for each one spilled. In all, 5,857 spills were recorded, but 85.9 percent of the total volume was contributed by just five incidents. No spills of more than 50 barrels resulted from drilling operations during the period, and the only spillage resulting from blowouts was caused by non-drill incidents, including construction, production, and workover. A comparison of the volume of oil spilled with the volume of oil produced for Gulf of Mexico OCS operations during 1971-1975 resulted in a spillage rate of twenty-eight/tenths of one percent. Spillage from tankers, however, has been very much greater.

Furthermore, the impact on the marine biota in any specific area resulting from large spills associated with OCS production is most difficult to predict because of the total uncertainty as to where a major spill might occur, and the highly dynamic medium in which it occurs. If determining the impact of major spills upon the marine environment is the major justification for the baseline studies, it might be interesting to put these expenditures in some sort of perspective.

During 1975 and 1976, the Interior Department's expenditures for baseline studies exceeded $40 million. Since spills from both production and transportation for the 1971-1975 study period averaged about 10,000 barrels per year, this equates to about $4,000 of study funds for each one barrel of oil spilled. By further comparison, one of the most costly spills ever to clean up was from the Amoco Cadiz in the Seaway and cost about $1,170 per barrel. Using another yardstick, four estimates of total costs for the famous 1969 Santa Barbara spill range from $6.7 million to $27 million. Now assuming 25,000 barrels of oil were lost in the Santa Barbara spill, the total actual average cost per barrel was approximately $1,050 or only one-fourth the current average cost for the Interior Department to study a baseline for a spill. The bulk of the Santa Barbara spill costs dealt not with clean up, but value of lost product and compensated damages to property owners.

It should be noted -- perhaps as an aside -- that knowing trajectories of oil spills, just like knowing trajectories of tornadoes or hurricanes may only partly mitigate impacts and not prevent them entirely.

The second justification claimed by the proponents of these environmental studies is "to predict impacts on the marine biota resulting from . . . introduction of drill cuttings and pipeline muds in the area. . . . It is similar to drilling mud additives are meant to be included in any future study since they have been a primary target of environmental extremists in the past. The two principal components of drilling".

Even though extensive field and laboratory tests of drilling mud additives in those studies have been chromium and barium sulfate. Even though extensive field and laboratory tests of drilling mud additives in those studies have been chromium and barium sulfate. Even though extensive field and laboratory tests of chromium have found such substances are still continuing. Barium sulfate has also been under close scrutiny. It is inert, the 14th most common compound found in the oceans and sold out by industry for reuse because of its high cost. It is interesting to note that radiologists use it -- at 94 percent concentration -- in humans and lower for gastrointestinal (G.I.) examinations. Doesn't it seem that common sense would indicate that barium sulfate is not dangerous to humans and should cease, therefore, to be an excuse for further scientific study?

Most of the people I know in the ocean industries are not concerned about the impact of drill cuttings and drill mud upon the environment and feel that the Federal government has a more pressing need to spend the taxpayer's money on than such studies as are contemplated in H.R. 1614. Let's put this item in perspective also.

A comparison of the volume of waste material resulting from a typical OCS well with material dumped into the New York Bight shows how unrealistic this concern really is. An 18,000 foot well discharges 961 cubic yards of sediment similar to that which is being transported into the oceans by river discharge. In 1974, data on the New York Bight compiled by the Environmental Protection Agency revealed that 5,112 cubic yards of dredged material and 1,048,000 cubic yards of cell dirt were dumped into the Bight.

In other words, 5,321 OCS wells would have to be drilled in a single year to equal the amount of the dumped dredge material and 1961 well and equal the amount of cell dirt dumped in the ocean off New York. Do you agree this is just a little bit ridiculous since there have been only some 21,000 wells drilled offshore in the past 25 years?

But, that's not all -- there's more!

The third reason cited for these baseline studies concerns "the laying of pipe to serve the offshore production area." While this may be a legitimate reason for study in certain OCS areas, it's justification in the Mid and North Atlantic areas in most weak.

To emphasize this point, let me tell you about the surf clam industry on the East Coast which supplies about 60 percent of all clams consumed in the United States. The surf clam lives 12 to 18 inches below the mud line and is harvested by hydraulic dredges very similar to the jet tools used in "laying of pipe to serve offshore production." Where a pipeline jet may dig a 2 foot wide trench 6 feet deep, a clam dredge overturns the bottom 1-3 feet deep and 9 feet wide with sediment disturbed by the two tools, therefore, is approximately the same for each linear foot traveled.

There are over 100 surf clam boats based on the State of New Jersey alone. If on any one day, each boat worked two miles of two lines of surf clams, the volume of sediment overturned is approximately equal to 200 miles of pipeline laid. This could be the total length of pipe laid over two years to service the Barrow Canyon. From recorded statistics on the tonnage of surf clam lands, it is clear that the use of the horizontal hydraulic surf clam dredges have not harmed their industry.
men to tell them America cannot afford such ill-conceived interference with the need to develop additional domestic supplies of energy from the Outer Continental Shelf. H. R. 1614 must not be enacted.

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THE TETON DAM FAILURE IN RETROSPECT

by

Robert J. Finna
U.S. Bureau of Reclamation

INTRODUCTION

While requests for speakers to discuss the Teton Dam failure have come from all directions, none of these requests have been compelling. They have not come to a complete halt. The U. S. Bureau of Reclamation has pursued an extensive and systematic program of the exploration of the site of the failure, and it has looked critically at its own organization and design procedures, and other groups have also investigated our methods of accomplishing work and made recommendations for changes. As a result of these various investigations, certain changes are being recommended in the Bureau’s ‘plan-design-construct and operate’ procedures as well as in our organizational structure, and it appears that we will have something to talk about for some time to come.

The timing of this December meeting is fortuitous. It gives, of course, an opportunity to look back on the events of June 5, 1976 - to summarize the geology and the dam, at this time. The completion of some of the significant investigations into the organization of the Bureau and our procedures relative to dam safety, I can also relate some of the recommendations for change that have been made.

THE PROJECT

The Teton Project is located in the eastern Snake River Plain, a broad, tectonic depression underlain by rhyolitic and basaltic Late-Cenozoic volcanic formations. The dam is in the steep-walled canyon that the Teton River has cut into a gently undulating silt-covered, volcanic upland near the eastern margin of the plain.

The Teton Project was authorized on September 7, 1964, primarily to supply supplemental irrigation water for 111,210 acres of land in the Upper Snake River Valley in eastern Idaho. Teton Dam and Reservoir are the principal features of the project. Teton Dam was designed as a zoned earthenfill embankment with a maximum height of 305 feet above riverbed. Also included in the authorization are a 100,000-acre irrigation pumping plant at Lapoint, Enterprise-East Teton Feeder Pipeline. The reservoir has a capacity of 288,000 acre-feet, extends 17 miles upstream, and has a surface area of 2,100 acres.

A construction contract was awarded to the joint venture of Michaelson-Anderson and Peter Kiewit Sons Company in the amount of $39,476,142 on December 14, 1972. At the time of failure the power-pumping plant and the embankment were essentially complete; the mill tailings facility was not complete. Water intake and spillway specifications were to be completed by May 1977.

GEOLoGIC SUMMARY

The U.S. Bureau of Reclamation conducted geologic studies relating to the site selection and final design of Teton Dam extended over a period of about 10 years between 1961 and 1970. Diamond core drilling was done to explore the foundation of the dam proper and to define the geologic conditions at the various structure sites such as the spillway, outlet works tunnels, control shafts, and the pumping-generating plant. One hundred and six, 670 feet of drilling, were done by the usual diamond core methods, and both percolation tests were made in most holes.

The general project area is underlain by rhyolitic and basaltic Late-Cenozoic volcanic formations. Older rocks underlaying the site are Pliocene-aged Snake River basalts; these basalts are known to occur from deeper irrigation wells in the area but they were not encountered in the exploratory drilling. The Snake River basalts are overlain by a series of continental sediments and sedimentary rocks which were encountered in some of the exploratory holes. The rock of foundation of the dam with respect to the foundation is a welded ashflow tuff, sometimes called a rhyolite. The petrographic variations in the welded ashflow tuff from top to bottom of the canyon wall are negligible; the more noticeable variations are in the degree and orientation of the joint patterns which...
are described later.

The welded ashflow tuff at the site varies from about 180 to 600 feet thick in the abutments. It reaches a minimum of 50 feet in the left side of the channel section. The base varies in elevation since the unit was deposited on the very irregular surface of the channel sediments. On the extreme left side, at the site, the base of the tuff is about 100 feet above river level (el 5130). It decreases to 280 feet below river level (el 4750) on the right side.

Geologic units in the bottom of the canyon include about 100 feet of stream channel depositions composed of silt, sand, gravel, cobbles, and boulders. The lower part is finer textured material, silt and clay. An intracanyon basin occurs in the channel center and left bank. The unit is about 124 feet thick maximum (el 4881 to 5005). The rock is hard, intensely fractured, and the lower 1 foot is altered to another stream gravels 5 to 15 feet thick underlie the basin.

On the upland surfaces windblown silt reaches thicknesses of up to 50 feet, and this material was the source of zone 1 embankment.

JOINT PATTERNS AND SEEPAGE POTENTIAL

The joint patterns in the rock were mapped in the natural exposures prior to construction, and showed a predominately NW trending, high-angle joint system varying from 80 to 90° NW. A second system trending N. 60° - 80° E is also high angle. Horizontal joints were also recognized, and the upper 30 feet of the right abutment is plasty, permeable rock.

The reservoir seepage potential was recognized early in the investigations of the reservoir. Tests were made at various times. Preliminary estimates were about 8 to 30 second-feet (CSF), as based on the results of standard Packer tests in the NW-size exploratory holes in 1963.

During 1970, three angle holes, each about 400 feet long, were drilled high on the right abutment. In these 1,207 feet of drill hole, pressure water tests were made in 95 intervals of 15 feet long, and losses up to 180 gallons per minute were recorded, and in some tests no pressure could be developed because the water leaked into cracks as rapidly as it was pumped into the hole. Extended pump-in tests, up to 2 weeks duration, were also made at rates of 165 to 460 gallons per minute. These tests provided additional data which were utilized to compute a new permeability factor for the rock. Using this new factor (K value = 1,500 feet per year), a 31,000,000-square-foot leak area and a gradient of 0.05, the losses from the reservoir estimated at 75 second-feet (CSF). It was considered by the designers that a steady-state leakage up to 100 second-feet (CSF) could be tolerated and safety designed for. This amounts to a loss of over 50,000 acre-feet per year.

Bank storage and seepage losses during filling actually ranged from 650 to 800 second-feet (CSF) immediately prior to the failure. This is significantly more than the predicted 100 second-feet (CSF), however, it includes initial buildup of a ground-water mound under the reservoir which is a transitory rather than a steady-state condition.

DESIGN

The foundation and embankment design of Teton Dam was based on a knowledge of the foundation rocks gained by the core borings, water tests and a test grouting program which was done to determine the groutability of the jointed tuff, the intracanyon basin, and the basalt inverse-flow welded ash-flow tuff contact. The test grouting program showed that the basin was very tight and the 5 to 15 foot thick gravel layer under the basin was groutable. The test curtain was on the lower 15 feet of the D range. Additional high grout takes occurred in the top 70 feet. It was determined that lower stages of the holes could be grouted if routine manning and directional control were utilized. Materials investigations were also carried out to sample and test available materials to use in the embankment.

The embankment section utilized the windblown silt for the impervious zone 1 material. Zone 2 is pervious blanket type material from the channel deposits; it was intended to provide a chimney drain. Zone 3 is miscellaneous fill, silty to clayey material from the zone 1 borrow but not up to zone 1 standards. Zone 4 is the cobblerdam of mixed silt, sand, gravel, and cobbles; and zone 5 is rock.

The foundation design included 70 foot deep key trenches in both the right and left abutments above elevation 5100. This key trench was constructed with a bottom width of 30 feet and 0.51 side slopes. Along the valley floor and in the abutments, a positive cutoff trench was constructed through the alluvium to a depth of 100 feet to rock. As constructed, the trench has a minimum bottom width of 80 feet and 2:1 side slopes.

DESCRIPTION OF THE FAILURE

And so it was with full knowledge of the foundation rock characteristics and confidence in the quality of the design and construction that the dam was completed in October 1973 and the reservoir began to fill.

Beginning October 1, 1975, monitoring included daily inspections of the embankment, structures, and abutments and weekly readings of the ground-water observation wells. On June 3, 1976, two small springs developed in the spillway stilling basin and just above river level. There were flowing clear water at about 60 and 60 gal/min, respectively, from near vertical joints.

On June 4, 1976, another small spring was found about 300 feet downstream from the toe of the dam on the right abutment, flowing clear water at about 20 gal/min. The abutments and downstream face of the dam were examined during the day until 9 p.m.; no seepage was noted.

On June 5, 1976, the day of the failure, the first observation of new water from the dam made at 7:10 a.m. This was muddy water exiting from the right abutment (rock) at about elevation 5043 near the toe of the dam. The water was tasted and found to be drinkable. During the day, a second area of seepage was detected, about 8:00 a.m. This was muddy water exiting from the right abutment at about elevation 5043 near the toe of the dam. The water was tasted and found to be drinkable. During the day, a second area of seepage was detected at 8:00 a.m.

By 9 a.m. the flow increased to 40 to 50 CPS and an additional seep of 2 CPS of clear water was noted at about elevation 5200, issuing from the rock of the right abutment about 130 feet below the dam crest.

Between 10 and 10:30 a.m., a wet spot developed in the fill at about elevation 5125 and 15 feet above the water from the right abutment. A dike was constructed to control the 2 CPS flow of clear water from the abutment. This wet spot soon flowed about 15 CPS and developed into a large seep which began sloping material and eroding its way back into the embankment. It grew rapidly and the water quantity increased.

Between 10:30 and 11:00 a.m., two dozers attempted to push material into the enlarging hole; both were lost.

At 11 a.m. a whirlpool was observed in the reservoir 10 to 15 feet from the intersection of the reservoir surface with 100 to 150 feet from the right shoreline - apparently above the embankment/abutment contact. It gradually increased in diameter and depth; efforts to push riprap into the hole were futile. At 11:50 a.m. a sinkhole developed, and at 11:55 a.m. the crest fell into the water. The dam was breached at 11:57 a.m.

Water surface at time of failure was at elevation 5307.3, 3.3 feet below the spillway sill, and the reservoir contained 251,000 acre feet. It took about 5 hours for the major portion of the reservoir to empty.

THE INVESTIGATIONS

Within hours of the failure plans were developed to initiate official investigations to determine the cause. Two panels were named and both were convened, one within a week, the other within 2 weeks, to begin their work.

An independent panel of nine internationally known individuals was named by Secretary of the Interior Thomas S. Kleppe and Governor Cecil D. Andrus of Idaho to review the failure of Teton Dam and determine the cause. Members of the Independent Panel were: Wallace L. Chadwick, Chairman; Ralph E. Peck, Constructoonal Engineer; Thomas M. Lape; H. Bolton Seed; Munson Dowd; E. Monford Fucik; Dr. Howard Coombs; and Thomas Higginson.

The other investigating group, officially known as the Teton Dam Failure Review Group, was established by the Under Secretary of the Interior and included representatives from the Bureau of Reclamation, Geological Survey, Tennessee Valley Authority, Army Corps of Engineers, and the Soil Conservation Service. Members of the Teton Dam Failure Review Group included: Dennis Sachs, Chairman;
Homer B. Willis; Neil F. Bogner; Floyd P. Lacy, Jr.; Robert L. Schuster; and Harold G. Arthur.

Both of the technical panels wrote initial reports in the summer and fall of 1976, and based on their recommendations, an exploration program was initiated. Exploratory work on the fill remnant on the right abutment was carried out by the end of 1976, and during 1977 a similar program was carried out on the fill remaining on the left side. The panels agree that the failure was a result of internal erosion. The basic question to be answered by the exploration then is "What was the cause of the internal erosion?"

There are many aspects related to the design and construction that could have contributed, such as:

a. The jointed and pervious nature of the abutment rock - especially in the higher elevations.

b. The properties of the silt -- a relatively "brittle" and erodible material.

c. The key trench bottom width of 30 feet is narrow compared to the reservoir head.

d. The difficulty of thoroughly sealing all cracks in contact with zone 1.

e. The difficulty of compacting zone 1 fill against the steep, rough sides of the key trench and abutment.

f. Grouting the upper layers of rock under the spillway gate structure.

g. The geometry of the steep abutment with a narrow, deep key trench.

Some of the possible causes that have been proposed include:

a. Hydraulic fracturing

b. Cracking of the zone 1 fill due to differential settlement

c. Piping along the interface between the zone 1 fill and the rock foundation.

d. Flow through the grout curtain

e. Flow bypassing the grout curtain - by going around or under

The investigators likened their task to an archeological dig as they searched for clues to the dam's failure. The embankment remnants on both the right and left sides are carefully excavated, sampled, and traced. Hand cut samples and push samples were taken for laboratory testing; penetration tests with a Proctor needle were made. The rock was carefully removed from fill samples and the fill was examined for any sign of disturbance. Core drilling and water pressure testing were done to explore the effectiveness of the grout curtain and to explore the possibility of hydraulic fracturing.

The Independent Panel completed its work utilizing the results of the field studies completed during 1976. On December 31, 1976, they issued their report on the failure of Teton Dam. They concluded that failure was due to piping or internal erosion of the embankment material, and two failure mechanisms are suspect:

(1) "One is the flow of water against the highly erodible and unprotected key trench filling through joints in the unsealed rock immediately beneath the grout cap near Sta. 14 + 00 and the consequent development of an erosion tunnel across the base of the key trench fill." (2) "The other is cracking caused by differential strains be hydraulic fracturing of the core material filling the key trench." 

The fundamental cause of failure may be regarded as a combination of geologic factors (such as the numerous open joints and the scarcity of a more suitable zone 1 material than the brittle windblown silts) and design decisions (such as dependence for seepage control on key trenches and a grout curtain, the configuration of the key trench, inadequate provisions for collection and discharge of seepage). All of these and other geologic factors and design decisions together permitted the failure to develop.

The Teton Dam Failure Review Group submitted its report in April, 1977, and, although their conclusions were basically similar, they placed slightly different emphasis in their reporting and on the possible causes of the failure.

While the technical investigations were in progress, other groups were looking into the organization of the Bureau of Reclamation in order to discover the procedures used by the Bureau that might have contributed to the failure of Teton Dam. The request of the Congressional Committee on Government Operations (the Honorable Leo J. Ryan, Chairman), the General Accounting Office reviewed practices and procedures by both the Bureau of Reclamation and the Corps of Engineers relating to the safety of dams. The report of the General Accounting Office was submitted to the Congressional Committee in June, 1977. It contains recommendations to the Secretary of the Interior, the Secretary of Defense, and the Chairman of the Federal Coordinating Council for Science, Engineering and Technology. Both technical- and management-type recommendations are included with the emphasis on dam safety.

While the results of the various technical- and management-oriented investigations are all of great importance, I believe that the recommendations being made by one particular group promise to have a very great and lasting influence on the Bureau's organization and methods of operation. This group is known as the Technical Procedures Review Team. It is an all U. S. Bureau of Reclamation team made up of five employees who worked full time for 2 months to carry out an in-depth internal review of the Bureau's technical and managerial procedures as they affect the safety of dams. They were specifically charged with the responsibility of reviewing the Bureau's procedures and practices related to dam and reservoir safety. Their approach was in the nature of an audit; therefore, their report concentrated on those procedures and policies which need strengthening.

The report of the Technical Procedures Review Team was completed in August, 1977. It contains 82 suggestions for changes to the Bureau's dam plan-design-construct-operate process in 11 different categories (such as documentation, instrumentation, responsibility, review, safety of existing dams, and technology, to name the most important ones.) Most of these have been approved by the Commissioner of Reclamation for implementation.

The completion of this report allows the Bureau to begin to develop the policies and procedures that will hopefully prevent the recurrence of Teton Dam failure and other similar problems. It also gives the Bureau an added responsibility to ensure the safety of all existing and planned dams.

Some months ago, I spoke to a group of freshmen engineering students at the Teton failure. At the end of the hour, one of them asked me if anyone "caught heck" for the loss of the dam. I responded by saying that no one has been held criminally responsible for the failure. The Bureau has been held for engineering failures in other countries. But in retrospect, virtually every engineer and geologist in the Bureau and elsewhere involved in the construction will feel the impact of the Teton failure in one way or another. In effect, many more than just those involved in the original work will feel the "catch heck" for its loss. But, from the loss we have gained technical knowledge, and through the changes suggested by the various investigators, I believe the Bureau, as a technical organization, will be strengthened.

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THE PROFESSIONAL GEOLOGIST, THE STATES SECURITIES COMMISSIONS, AND THE PUBLIC INVESTOR

by

Richard D. Latham, Securities Commissioner
Texas State Securities Board

I appreciate the applause now because I have a feeling that there are a few of you out there who don't like bureaucrats very much and the rest of you don't like them at all. And, I sort of fall into that category. I'm a bureaucrat by definition even though I don't think that always act like one. At least I hope I don't.

They say that there never has been a bureaucrat who has admitted that he makes a mistake, however, that's not always true. I do know of one who admitted that he made a mistake. He said, "I thought I was wrong one time, but it turned out that I was mistaken."

Now I know that you all, on a day to day basis deal with just a myriad of bureaucrats in the federal government and in the state government. At least you've heard enough of it and I really can't say that I blame you because even though I am in state government, I am just about as conservative as you can get and the bureaucracy drives me crazy. The people that deal with from the
bureaucrat side run into the same problem that you do every
time that they try to deal with any other agency.
Because the bureaucrats are bureaucratic with each other
as well as the general public.
I have a feeling that I'm not going to tell you
anything today that you really want to hear because
security regulations have been around for a long time.
Yet there are an awful lot of people who deal in securities
perhaps without even knowing it, and who probably go
around everyday violating laws that they didn't even know
existed. That's part of what I'm going to do in the few
minutes that I have this afternoon, to try to open up
some of the securities laws as they affect the mineral
industry. And since most of you deal directly in that
area through oil and gas or other minerals, it affects
you.
A fractional interest in an oil and gas lease is a
security, has been since the early 1900's and a lot of
people, of course, in this area of the country deal in
oil and gas leases every day.
Now what I'm going to try to do is give you a
very brief overview as to how you are involved in this
and hopefully, you will remember some of the things.

The regulation of securities exists essentially
because there are a lot of crooks in the world
and unfortunately, when you become involved in
these matters, they really don't exist, it's just a concept . . . has made
it very easy for the con man to use the securities industry
to make a living. It's a lot easier to rob a bank
with a fountain pen instead of a gun. Because
of that, the securities industry has become the most regu-
lated industry in the world. If you are going to analyze
what it is to be regulated until you get into the
securities business. In 1974, the government and the
chambers of commerce in the United States did a study and
figured out that on an annual basis, securities fraud
amounts to about 40 billion dollars a year in the United
States. And, of course, 40 billion dollars a year is
pretty good business. So the Congress and the State
Legislatures decided that it would be in the public
interest to draft laws that would, hopefully, interfere
as little as possible with the freedom of legitimate
business and put the con men behind bars.
Kansan, in 1911, was the first jurisdiction in the
United States to pass a securities law and Texas was
second or third in 1913. As luck would have it, it was
essentially mass fraud in the sale of oil and gas
securities that led to the creation of the original Texas
securities act in 1913. There were a few hot oil fields
flourishing in Texas and there were a lot of people standing
on street corners selling shares in oil companies to
anybody and everybody and, of course, with that type of
atmosphere, most of the people were totally unaware
of anything. The citizens became aroused and said
we have to do something about that.
The United States Securities and Exchange Commission
was created in 1933 essentially as a result of the disasters
discussed that same year, the depression of 1929 that resulted in
the depression. All of that sounds very complicated, but really what happened then
is the same thing which is building today under the surface,
that is that it is so easy to buy securities. You could
buy stock for essentially ten percent down and pay for
the rest later. Everybody in the world was buying
securities at ten percent down. Then when the stock
started plummeting and margin calls started coming in,
everybody got wiped out. That same situation
say, creeping back in the economy today. There are
ingenious new securities which have been invented
lately including stock and commodity options. There
is a proposal now being presented by some of the
grain exchanges in Kansas City to start writing futures
contracts based upon the Dow-Jones Industrial average.
That may sound harmless, but it's the God's truth.
Probably within the next year or two you can go down
to your local securities or Commodity House and buy, with
a high margin, a claim upon the Dow-Jones 30 Industrials average. That may sound like
gambling . . . and that's what it sounds like to me
for sure.

O.K., what are securities? Everybody knows that
stock is a security, and that's as far as anybody goes in thinking about it. Stock is an equity security
where you buy a part of the company. But the stock market
is a speculative market, and so far as anybody
is going in thinking about it, it is a stock market
in that there are a lot of people buying and selling
in today's market that we're registering today for corporations are debt securities.
Bonds are what everyone wants today because people
just don't have enough confidence in the future to
buy a piece of America. They will lend it some money
with a high interest yield, something that they can get
out of in a hurry, but you're not selling much.
About the only people with any money to invest in anything
these days are the persons in the upper class who are
the 50 percent of the people. The middle class
people are looking for a tax shelter, so today tax shelter
investments are essentially where it's at. I would say
the major thing above all, the major investment today
most of all the work that we do in registering securities
are tax shelters of some kind.

Of course, oil drilling programs are a very favorite
kind of tax shelter investment and our statistics indicate
that the major concern in terms of numbers and dollar
values of the securities that we're registering now are
oil and gas related.
Drilling programs take care of the really big guys,
but what about the guy who wants to go out and drill an
oil well? What is he going to do? Well, there is a way
for him to get around the really burdensome part of the
securities law and get his capital and drill his well.
Of course, with the major one in oil. The
practically everybody who has some little piece of land thinks it
must have oil on it and he wants to find out. The registra-
tion of securities is very, very serious because
of all of the theft and corruption in the securities in-
dustry with all of the con men. What they steal makes
life tough, I guess, for everybody. Because if you
were a securities registrar you have to have an audited financial statement which means you are going to
have to have a certified public accountant and he'll want
20,000 before he cares for the legalities, and your
attorney is probably going to want to be likewise
compensated so you really can't go public today with
any kind of small offering because it's going to cost
$50,000 just to get started.
The "geologist" type of problem that we have been
faced with and the small operator has been at least
partially corrected in Texas after some visits from young people. One thing I know is that most of the money in State
Government is that nobody is very well informed outside of his own particular area of interest and
doesn't really know too much even about that. Now that
may sound critical, but I think that it is true. The most
educated of people know a little bit about a specific
field but I don't know very many people that know a whole
lot about everything.
We require persons who deal in oil and gas
securities to be registered. It's been that way since 1913. The
person who gets into trouble with the securities law is the
small "human being" who is going
to work for an oil operator and is going to go out and
acquire some leases. So he goes out and he acquires
a few leases for "John Doe" and then agrees upon price
and he delivers them up ready for payment. And the man
who contracted this work says, "Ah ha, I got you!" You
don't have a securities license. And you can't collect
only 67 common stock offerings for these lessees for me unless
you have a securities license. Where is your
securities license?" Well, he doesn't have one. This is
nothing that affects the State Securities Board, but it's some-
thing that affects you. And I've seen it happen lots
of times and lawsuits over it have gone up to the Texas
Supreme Court. The result has always been the same; that
poor guy who went out in good faith and acquired some oil
leases for somebody didn't get paid because he didn't
have a securities license. That is the law. It may not
be the way the law should be, but it's the way the
law is.
The State Securities Board is essentially a police
force. I consider the Board more "white collar cops"
than anything else. We spend about half our resources
on enforcing the securities laws and on criminal
enforcement. And I'm happy to say that in the entire
existence of the State Securities Board we haven't consumed
over $1000 of any tax payer's money. There is a
fee for getting a securities license and a modest fee
for registering securities. The people who deal legitimately with
the system who had registered with the Board have provided enough revenue for the agency so that we're
able to perform our regulatory and enforcement function out of these dollars. To give you some idea about the
size of the business and what I'm talking about, in
the last fiscal year we registered 69 oil and gas drilling
programs and only 15 real estate programs. There
were only 67 common stock offerings so there were more oil
and gas drilling programs registered than common stock
offerings. By dollar amount, it was far more.

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But as I mentioned, fraud in the securities industry has been what has brought all of the regulation that we now have upon us. And since there's lots of money in oil, all of the crooks now are playing either one of three games: in oil and gas or more recently, coal. All of the interest in last winter in coal got a lot of them, who had been selling commodity options fraudulently. It's those whose connections to oil and gas frauds. About 1/4 of the convictions, which amounts to 1/4, were related to oil and gas frauds. Civil injunctions, we had in which who wish, and most of all of the injunctions obtained last year, were related to oil and gas schemes. Back in 1974 and 1975, I would guess that 3/4 of all of the investigative time that our office spent was on oil and gas related frauds essentially in two major areas.

There was a rather massive fraud which most of you have probably heard something about commonly called the "Schedule D Frauds." That is an example of how government regulation can somehow break down, and actually foster a fraudulent operation. The Federal Securities Act of 1933 has an exemption within it for the sale of fractional interests in oil and gas leases if you don't raise more than $250,000 for any one well. It had lain there for at least 20 years, and was being used sporadically when suddenly a con man discovered that this exemption allowed one to file out a short form which is filed with the SEC to claim the exemption and then allowed one to say, "This offering is filed with the United States Securities and Exchange Commission.

The con men would set up an operation where, if it would cost $50,000 to drill a 1,000 or 8,000 foot well, they would charge investors $500,000 each, and would go ahead and call for completion money which would get them another $140,000 perhaps before they even decided exactly where to locate the well. But they didn't really intend to explore for oil in the first place. They would go into some essentially played out oil field, buy up some cheaper leases and then get a geologist or someone in that general area of expertise to prepare a map of the area showing all of the oil wells and the depths of the pools surrounding the location where they were proposing to drill. They always showed what the initial potential for those wells had been, but it would be 1500 barrels of oil a day perhaps, but then that was in 1925. They never bothered to disclose that in 1975 it was pumping 5 barrels a day or wasn't producing anything.

In some of the more riotous cases, they would tell investors that they owned one of the highest producing gas fields in the United States, close to Houston, when in actuality there wasn't a producing gas well within 10 miles of the location. There had been lots of gas wells there but they were not producing gas today.

Well, armed with that offering brochure, painting this great picture, the promoter gets about 50 Watts lines and hires men off the street who talk well on the telephone and run them out of the "Schedule D" corporate executives in the United States and lets them go.

The fact of the matter is, most investments that are made in this country are not based upon someone sitting down and carefully analyzing a prospectus and then talking to his financial analyst and trying to make an informed investment decision about what he's going to do. Frequently he doesn't have the background and the knowledge, and most investors in this country are babes in the woods. Based upon one or two long distance telephone calls, it's surprising to know dollars a con man can get in a check from an investor.

You could probably go home today, dial some executive back East, give a big talk about a big oil discovery you were about to make and first thing you know you've got a check from him for $200,000 and you don't know from Adam. Now that's essentially what happened in the "Schedule D's." And unfortunately, these con men were using Texas and California and the unique weather to sell all these worthless securities back in the East somehow. The Securities and Exchange Commission was not really able to do anything about the situation so that we found ourselves in a situation trying to fight occurring in Texas but with all of the purchasers in other states. We were successful in running them out of Texas and running them out of the "Schedule D" business, but essentially all we did was run them into some other state and into some other scam. Because the fact of the matter is, there's not many people who give a damn about white collar crime in this country, that's just the plain simple truth.

If you go out here and hold up a 7-11 store, they'll put you under the jail house for 25 years. But if you're able to come up with a scheme where you can go out and bilk $30 million out of the public the public, the public is virtually cooped and that is really part of the frustration that I feel. We run these guys to cover, get them indicted, get them convicted and get them off to the federal court and it happens in the state court. This fellow Tippett with the Home State Production Company found guilty in Oklahoma city, they think they offered conservatively in about $30 million. He personally apparently got off with about $6 million and the total amount of his punishment was, and the judge was speaking and how severe it was going to be. I've already past my time to end. Are there any questions?

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ANNUAL BANQUET

December 2, 1977

THE NATURAL RESOURCES OF SPACE

by Dr. Harlan J. Smith

Department of Astronomy

The University of Texas

Many doomsday prophets believe that civilization as we know it can scarcely survive more than a generation or two, because (to name just some of the problems) of increasing congestion, deteriorating supplies of fossil fuels and high-grade mineral resources, growing shortage of land for raising food, natural or man-made climatic changes, growing pollution of air and water, and the ultimate catastrophe of nuclear war. Such scenarios are painfully plausible as long as we cling to the medieval frame of reference which assumes that the earth is the center of the universe, indeed the only material object in the universe. Rationally, of course, educated people realize this is not the case, but very few have really come to grips with the implications, the Copernican revolution -- that the earth is only one of many planets, orbiting one of the almost countless stars. In fact, space offers the human race unlimited room for expansion, effectively unlimited supplies of raw materials, and essentially unlimited amounts of energy for an almost infinite future.

Specifically, the sun emits thousands of trillion of times more energy than all of the 200 billion stars of the visible universe by the human race. It will continue to shine at this rate for at least 5 billion years. The tapping of even as the infinitesimal fraction of this supply will provide all the foreseeable energy needs of the human race in a fashion which should be essentially free of ecological damage, and -- once the high initial outlay is paid to get into the business -- at costs substantially lower than those of electric power today. Initially, this must be done in the faces of the mass of the Sun, the act of the relatively few years the feasibility of tapping sunlight in space and broadcasting it to earth should be demonstrated, to be followed in another few decades by the provision of much of the earth's power from this source. The ultimate uses of solar energy in space will be enormously greater yet.

The moon, asteroids, and comets contain enough material to construct billions of gigantic structures in the solar system. By the end of the next century some of these will be capable of housing millions of people each in completely self-sustaining environments, so that over the next few centuries the center of gravity of the human race will shift away from the earth.

While these ideas usually seem far-fetched or faraday when first encountered, actually the human race is poised on the brink of take-off into this new world of space. The next few years will see the initial establishment of space stations, space
solar power systems and space habitation. The 21st century will see their development to a gigantic scale, with promise of solving most of the material problems of human life. Other problems (political, psychological, religious . . .) may prove more intractable, but the promise of space is the promise of a new lease on life for the child, younger than the first generation, of the old era of man, but who does not live in the cradle forever. And our generation is privileged to be taking the first steps toward mankind's new humanity.

THE BEN H. PARKER MEMORIAL MEDAL

TESTIMONIAL

by

Orlo E. Childs

Frank B. Conselman is a man of fierce allegiance to the institutions, the profession, the people, and the cause he has chosen to uphold. Like a converted Christian, he is a man of intensity and dedication toward those activities he deems worthy of his efforts. We all have our white lists and our black lists of life's excels.

There are neutral grays that can go either way. Frank's spectrum always seems wider than most. Somehow his white seems whiter and his black seems blacker. For many years now, for the science of Geology, professional service to that science has always been to Frank one of the highest callings on his white list. Not that he ever has been a wit, a writer, a poet, an historian, a pilot, an opera critic, a courtly gentleman, or a philosophic world traveler. In fact, he is all of these, but each role is subservient to his pride in being a geologist.

During the long discussion and careful planning that were a part of the founding of the American Institute of Professional Geologists, Frank was an integral part of the process of initiation. He enjoyed a special trust and confidence of the founders including Ben H. Parker and the first President, Martin Van Couvering. As first editor of the Institute, Frank was part of the original Executive Committee, and is the holder of an Institute Certificate that reads: Certified Professional Geologist, Certificate Number 4.

After the Institute became a viable entity there were the expected growing pains and stuttering steps. All recognized that strength and a firm future would be served by unification of certification and professional activity. Many efforts outside the Institute were directed toward this unification but the intense loyalty of geologists to individual societies made these early efforts fruitless. Early efforts headed by Ben Parker tried to achieve the goal of unity but it was clearly an idea who's time had not come.

Frank's presidency of AIPG, followed by the presidency of AIPG, and then AGI provided him with unique leadership opportunity to achieve the unification and heal the splitting of professional activity that had been the expressed hopes of many (including Ben Parker) from the first days of AIPG. To present Frank B. Conselman to you, Conselman did it. And it is the most remarkable contribution to the profession of geologists I have seen in my lifetime. The present form and the future service of the Association of Professional Geological Scientists owe much to the work and leadership of this man.

The biography of Frank B. Conselman has been printed in many publications. His New York beginnings and first degree at New York University were followed by graduate work at Harvard and Columbia culminating in a Ph. D. from the University of Missouri in 1934. His 44 years of professional geological work have been largely tried to Texas, his adopted state. The word adoption is too weak -- typical of Frank he is a Texas convert. Officially, he has retired from Texas Tech University, but he is now working even harder at teaching, on world trips and an unending search for new oil and coal prospects, and research evaluation of concepts of regional geology.

The annual designation of a "Ben H. Parker" medalist provides a perfect setting to recognize the contributions of a man like Frank B. Conselman. Frank B. Conselman will join me in the thought that it also repeats our reminder of the influence we appreciate and the affection we held for the man for whom the medal was named.

President Taylor, it is my honor and great personal pleasure to present Frank B. Conselman to you for designation as the 1977 Ben H. Parker medalist.

THE BEN H. PARKER MEMORIAL MEDAL

ACCEPTANCE

by

Frank B. Conselman

An occasion of this sort, involving as it does favorable recognition by one's peers, is of course, vastly gratifying to the recipient. Ben was honored not only by the fact that this is an award by the Association of Professional Geological Scientists, but by the fact that he was selected as one of the recipients as recipients of the Ben H. Parker Memorial Award, whose company was the better before I joined it. And I am indeed additionally honored to be presented in such a manner by a man of the stature, quality and intellectual attainment -- as well as charity -- of my good friend Orlo Childs.

More important than even these pleasant considerations is the sober realization that this insignia carries the name of Ben H. Parker, a friend and inspirational leader whom I have deeply admired for over forty years. Ben Parker was truly a legend in his own time; surely he will be remembered as long as this organization exists because he was a virtually indispensable factor in its conception and initiation.

Ben, who died unexpectedly some eight years ago, would no doubt be pleased by our recent AIPG revision, for it makes possible the profession-wide unity he had so urgently advocated.

But Ben Parker was more than a legend -- he was a man, a warm, friendly, cheerful, highly intelligent, thoroughly honorable, flesh-and-blood man. He had many skills, and made many contributions to science as well as professional geology. Many other fine men could be given similar credits, and deserve them, but what made Ben Parker unique was his exemplary and inspirational quality, which upgraded everything with which he became associated, and gave it an aura of integrity and "rightness". The success of any project seemed assured beyond question if he touched it.

I first crossed Ben Parker's path in 1935, when I was a cub breaking in for the old Gypsy Oil Company in the oilfields of southeastern New Mexico and Ben was head of the surface department in the Carlsbad Pecos and Guadalupe Mountains for the same company. Nobody ever saw Ben Parker; we knew he was up there in his tent camp somewhere, because every now and then his bills would fly down from the hills. But even then it was taken for granted he was hard at work on a larger-than-life basis, getting results that were sure to be important, and sure to be right. Even in those younger days, Ben Parker was impressive. He was a leader, and his followers liked being led by him.

I had the privilege of serving as Ben's vice-president during his AIPG presidency. In 1960, one of members of our executive committee included such AGS stalwarts as the late Lewis G. Weeks, George V. Cobbett, and the late Martin Van Couvering. Watching Ben Parker perform was an educational experience -- a lesson in smooth, urbane, polished efficiency. I recall that Ben had the job of meeting with the GSA and SEG representatives. Ben made the achievement of unity among these previously less-than-harmonious groups seem easy and inescapable.

During the early '60's, before AIPG was founded Ben was chairman of AIPG's Code of Ethics Committee, which later was transformed into AIPG's Professional Affairs Committee consisting of E. E. Rue (later chairman, and now about to become AGS president-elect), Francis Van Tuyl, and myself, together with Ben as chairman. Our inability to get AIPG to act upon our Annual Report was probably the triggering cause for the creation of AIPG. We did not proceed immediately to AGS, but I believe we had verified the fact that, in the latter part of 1963, AIPG had no comparable activity in progress.

We met as a steering committee in Oklahoma City in September, 1963. I recall that Bud Rue and our outgoing president, James Reimn, were responsible for organizing the meeting. My own contribution -- and this alone may well qualify me for a medal -- was to persuade Martin Van Couvering to come to AGS to attend. Ben Parker was, of course, chairman of the meeting, and in retrospect, it appears to have been a remarkably successful meeting. Under Ben's leadership, we agreed on what we all wanted and made many important decisions, harmoniously and expeditiously. With Ben there all of us had the feeling that what we were doing was necessary, worthwhile and right.
Our founding convention was held on the campus of Colorado School of Mines, supported his president, Orlo Childs, in extending the hospitality and the AIGP enjoyed during its fledgling days on the Gold campus. I recall with shameless pride how Ben and I succeeded in literally cornering Martin Van Lennop’s formal reception at Warren Beebe’s home in Boulder, and getting Martin to agree to accept nomination as our first president.

An early decision was to endeavors to recruit the most prestigious geologists in all phases of geology, so there could be no question of what AIGP stood for -- and with people like Ben Parker, Martin Van Couvering, and Orlo Childs for starters, how could we miss? Thus we soon had enrolled personal whose impeccable reputation of Jan Campbell, Morgan Davis, Michie T. Halbouth (who bankrolled us), Hollis Hedgson, Mason Hill, A. I. Leverson, Kirtley Mather, Bill Pecora, Walter Pinto, etc., etc., weeks, and many others during our initial snowballing stages. They asked not what AIGP could do for them. One of our most important acquisitions, incidentally, was Arthur F. Brunton, who has staffed us from the start. With people like Ben Parker in the pilot house, and Art Brunton in the engine room, we really couldn’t fail and we haven’t.

Ben Parker had a very smooth, relatively painless arm-swinging technique. No one ever said “No!” to a Ben Parker request, and a “maybe” might as well have been a “Yes” by the time Ben was through with it. I remember vividly a long discussion that took place a few days before Christmas, 1966. The conversation started out like this:

Ben: Frank, how’d you like to have $25,000 cash.
FBC: Fine! Put it in a box and mail it to me first thing in the morning.
Ben: Not only that, but AIGP gets $25,000 too. Now here’s all you have to do --- etc. etc.

"All I had to do" was to enter and win, under AIGP sponsorship, an essay contest for the $25,000. There were thousands of entries. For reasons that now seem ridiculous, I let Ben talk me into entering this contest, wherein I foolishly fancied I had an angle that might pay off. I wrote and wrote, and Grace typed and typed, all through Christmas week, and we barely beat the December 31st deadline. When Ben got his copy of my opus he assured me that we had a winner, and that if we didn’t get the $25,000 each, the contest was fixed. Coming from Ben, this seemed quite plausible, and strengthened my opinion of my own for which my natural modesty was proving unable to suppress.

I didn’t win the first prize, nor any of the other four money prizes. I didn’t get honorable mention, either, this being the reward for the remainder of the top essayists. I did win one of the little plaques given to the top 300, together with an invitation to travel to Chicago at my own expense and buy a $7.50 ticket to a banquet for the winners. AIGP didn’t get a thing. In retrospect, I realize that I let Ben Parker overcome my better judgement, but also in retrospect, I know I’d do it all over again, if Ben asked me. And it seems increasingly possible that Ben was right, as usual, in suspecting that we were robbed.

Grace and I remember with nostalgia the many delightful evenings we spent with Ben and Betty Parker in places like Yosemite and New Orleans, Atlanta City and Denver, San Francisco and Biloxi, in our respective homes, and, just before Ben’s death, in Brighton in England.

Ben has been gone for over eight years now, but to those of us who were fortunate enough to have been his friends, his memory is fresh and green. I know he probably always will be. When I think of the difference between the sort of man Ben Parker was and the sort of man I am, I am humble; when I think of the difference between what I was and what I have tried to become under Ben’s tutelage and example, I am grateful. I am deeply grateful, also, to all of you who are helping to make AIGP what Ben Parker hoped it would become. Thank you for a memorable and wonderful experience.

OPENING COMMENTS BY LARRY D. WOODFORK
WEST VIRGINIA

Good morning ladies and gentlemen. I am Larry Woodfork and I live in Morgantown, West Virginia. It is my pleasure to be here this morning and participate in this AIGP panel discussion concerning state registration of professional geologists. However, I should say at the outset that the views which I present are solely my own personal views on the matter and do not necessarily reflect those of my employer, the West Virginia Geological Survey, nor those of any other group or individual.

The West Virginia legislature has had a professional geologists registration bill introduced during the last two sessions. In both instances, the bill died in committee at the end of the session. However, it advanced further the last time, clearing several committees. The bill will probably be reintroduced again during the next session. It is endorsed by the West Virginia Section of AIGP. As a past officer I have been active in promoting the bill on behalf of the state section and that forms the basis and background for some of my comments.

There are a number of self-serving reasons why geologists might want to gain legal recognition of their profession through state registration and licensing although in my view the only legitimate reason for such government regulation of professional practice is to protect and promote the public welfare. However, I would suggest the two goals may not necessarily be mutually exclusive and they can be quite compatible if approached correctly. Professional recognition and public good can coincide.

Mounting environmental and energy concerns have brought the general public into much closer contact with geologists than has previously been the case. Various professional geological services are in greater demand by a larger market today than ever in the past. I feel that the public is entitled to reasonable assurance that those offering their services as professional geologists meet certain minimum standards and adhere to acceptable codes of practice. State registration and licensing of professional geologists is one approach. I also feel that when the public is best served by our profession it is both directly and indirectly beneficial to our profession.

One word of caution, however, should be emphasized. We must always be sure that the proposed registration legislation is truly in the public interest and does not unduly restrict competition or qualified individuals nor tend toward over inflated fees for professional services. Many professional registration and licensing laws and boards have come under close scrutiny recently regarding such allegations.

In summary, I would say in many instances, legal recognition of geology and professional geologists and regulation of professional practice are in our own best interests. Where laws or rules and regulations (either state or federal) require the services of a registered professional geologist, the advantage of professional registration is obvious. When registration laws do not unwaveringly limit competition nor lead to over inflated fees, the balance is also tipped in favor of the public good by providing the necessary assurance that those offering their services are professional geologists and qualified to do so. These are my two answers to the question posed - "Why to" seek professional registration. First and foremost, to protect and promote the public welfare. The second, if approached correctly should follow from the first - enhance the profession of geology and the professional geologist. The rationale is simple. Practical implementation can, of course, be considerably more complex.

OPENING COMMENTS BY JOSEPH FRITZ
MISSISSIPPI

The purpose of this panel discussion is to address the "why" of registration of geologists.
Geologists historically have been free spirits who float around in areas between science, business and engineering functions. They are found in virtually all companies, schools and agencies that deal with natural resources. Unfortunately, too often they are only advisors at a secondary level and seldom rise to positions of top management.

It is still a mystery to me why geologists, as professionals, have not been able to maintain the respect normally seen with lawyers and doctors. I don't know if it is because of our early training or of later career situations which we have permitted. In either case, it appears to me that we need to elevate ourselves to a plane higher than what it has historically been.

Do we keep our eyes to the microscopes and drafting tables when we should be more concerned with personnel and administration? Are we sacrificing our job advancement by concentrating too much on the details of our science? There are many geologists who have dedicated themselves only to the theoretical and academic aspects. But there are many more of us who have tried hard to advance along administrative and management lines along with other professions. So often it appears that we are somewhat handicapped because we are geologists.

I see geologists passed over for promotions in schools, in oil companies, in businesses, almost as a matter of regularity. There is something about our profession which simply does not inspire confidence in others and make them want us as their leaders. It is hard for me to believe that the reservoir engineering or our other talents are not as good as those who are new to the field.

I have worked seven years with a major oil company, fifteen years as an independent, and now with a small company. It has never been difficult for me to make a living, but it has always been difficult for me and my fellow geologists to rise above the norm.

I strongly feel that we make contributions of a magnitude which should elevate us to higher levels. The work we do, whether in oil companies, government or schools, is frequently the basis for major decisions involving large numbers of people. If we do the foundation work for decisions involving so many people and many dollars, why are we not top management?

The only answer I have is that we are not respected sufficiently as a profession. I think we can only blame ourselves for this because we have not boosted ourselves as geologists and because we have not worked hard enough to earn respect. We are too nonchalant about the contributions we make and about the knowledge that we possess. We need to advertise ourselves more, and we need to get that respect of the people in general public and of those who control our careers.

The largest employer of geologists is the petroleum industry. It is my opinion that this industry is basically established upon contributions from its geologists. Furthermore, I believe that the contributions made by petroleum geologists are not our sample descriptions or fossil identifications, or contour maps, or log correlations - rather it is the spirit of optimism which only we can provide. Oil exploration is an extremely risky business and when one applies normal engineering or normal business risk parameters, it should not be done. Yet exploration for oil and gas is done successfully and will continue to be done so, primarily because of the optimistic geologists who provide the necessary confidence to the general public and of those who control our careers.

I can only see two ways in which geologists will be able to stress their importance and earn the respect that their contribution to society deserves. One way would be through an extremely high standardization on a national level similar to the American Medical Association. I doubt if we will ever be able to get together into such an organization. Virtually, this appears to be a splintering among geological associations rather than a consolidation. The other method which I think geologists should elevate our profession is through registration on a state-wide basis.

There are many benefits to registration, the chief of which is the increased level of respect it provides. This has been achieved by doctors, lawyers, CPA's, registered engineers, etc. and I see no reason why geologists cannot also have it. This respect is primarily earned because the public interest is involved.

Instead of having a loosely knit conglomerat of non-chalant, semi-professionals, we can have in each state a recognized group of highly professional geologists who are self-disciplined and the governing board which is attendant to it, means that we as geologists care enough to police and improve ourselves.

I have seen strong opposition to registration from a few geologists in Mississippi. The opponents that I have met are in one of two classes: 1) they either have it made, that is, they either have risen to the point where company goals are more important than the individual goals of their fellow geologists. I have succeeded in becoming wealthy as an independent, and 2) those who are semi-professional or even non-professional and are afraid of the effects of the improvements in the geologic profession. In my opinion, the latter unprofessional people do not deserve to be registered geologists, and the former who have achieved some success need to be convinced that registration is best for the profession as a whole.

In summary, the "why" for registration is that it provides the most effective method for geologists to elevate the status of their profession, and to earn a greater respect for themselves and all geologists.

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OPENING COMMENTS BY DEREK TATLOCK PENNSYLVANIA

The Pennsylvania Registration Bill is currently in the House Committee of Professional Licensure awaiting Committee approval to introduce it to the General Assembly. It is very unlikely that the Bill, nor any other, will move this year due to a State budget crisis.

House Bill No. 1133, "The Geologists Registration Act," provides for the licensing of persons practicing geology on a professional basis in the Commonwealth of Pennsylvania. The Act creates a State Board of Registration of Professional Geologists; defines the duties and responsibilities of the Board; provides rules for geological practice and established penalties for violation of the Act.

The main objective of the Act is to make provisions to protect and safeguard life, health, property, and environment in the public interest. To achieve this goal, the Act sets forth standards of competency and ethics for the geological profession. Rules are established and penalties are provided if the rules are broken.

Registration will also allow geologists to be legally recognized in a court of law and enable them to authorize reports and documents without the need of a professional engineer to co-signature and stamp. For example, Title 25, Rules and Regulations, Part I, Department of Environmental Resources, Subpart C, Protection of Natural Resources requires a geologist's signature.

The Act includes a reciprocal agreement permitting geologists registered and in good standing in another state to register upon request and fee payment in Pennsylvania.

However, in order to appease interests, the Bill was "watered down" to exempt from registration geologists engaged in State and Federal government; teachers engaged in the teaching of geology; geologists practicing solely for their employer; persons practicing geology for their own use, provided it does not relate to the public interest; and engineers duly licensed under the Commonwealth of Pennsylvania.

Another major concern is the ability of the Board together with the licensed members to police the system. Other licensed groups have this problem. All cases must be dealt with by the Board, without prejudice for or against. Having a fifth Board member who represents the consumer public and who is not a professional geologist should alleviate this problem.

The Bill, when first introduced in 1976, remained in the hands of the Department of Environmental Resources and was never introduced. It was opposed by the chairman of the Professional Engineers and certain government officials of the Department of Environmental Resources. Amendments were made to the 1977 Bill and, to date, no objections have been heard.

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OPENING COMMENTS BY M. O. TURNER
TEXAS

Last year at our annual meeting, the Texas Section voted 47 - 2 to oppose registration. The following are some of the reasons I oppose it.

Registration to protect "the public welfare", to upgrade professionalism and enhance our image while at the same time policing our ranks and conferring the incompetent; all of these lofty and idealistic goals, like $3.00 oil, in my opinion, have had their day. We've now entered a whole new era in public -- professional relationships. "Protecting" the public's current welfare, as many medical practitioners will affirm, is often like hugging a bear. Today's bear, like the public, isn't too concerned with noble ideals and lofty goals. They want all they can get and, through the courts and a biased news media, they usually get what they want.

"Regulation" looms ahead, I believe and registration is now a fading relic. An example, an abundance of national and statewide registration and certification boards, agencies and commissions are the prime targets of the increasingly popular "sunset laws" now spreading across the nation. Further, "sunset" legislation is scheduled to be introduced in the Texas Legislature this year to phase out the State Bar, Pest Control Board, Optometry Board, Board of Pharmacists in Texas, Railroad Commission along with many other Boards, agencies, and commissions, all newly chartered in the State of Texas. This proposed legislation is scheduled to die when the expiration of practically all regulatory, licensing and advisory boards in existence in the state of Texas and I don't think this Texas attitude is that unusual elsewhere.

Because of this, it's now important that geologists begin to think seriously of the imposition of crippling controls, oppressive and possibly punitive regulation from their legislatures, bureaucrats and other consumer oriented zealots.

The driving force behind this coming wave of added control and regulation is the increasing emphasis on "consumerism" or the "public welfare", which has come about because of the "failure of the private sector", etc. It's the cry of the public listening to the calling for a totally regulated economy in order to return "power to the people", or a Governor Brown of California, where they do geologists or geology. As one put it, "Citizen's participation will insure that - the professionals serve the people, not just themselves.

I also stated in a recent article that we must - separate privilege from professionalism", and with regard to participation on professional boards he stated that, "lay control is a vital ingredient in our democratic process."

This seems to me to be the prevailing mentality and national attitude across our land today and while I remain opposed to registration of geologists, I also believe there are more important and immediate objectives to think on. One thing we should keep in mind is to try to maintain our present role in the public and continue its scalp hunting. I also believe it important to our collective well-being in the future to minimize business and professional contacts with the public sector particularly in regard to drilling and other high-risk exploration ventures. Historically, geologists have conducted their affairs pretty much by themselves. However, the public's interest and focus on environmental, dam failures, water supply problems, the continuing disputes over use of practically every form of energy, threats to the environment and ecological systems etc. and other widely publicized "public" problems; all of these serious public matters have thrust us more nearly on center stage. At this point, I think we can agree, our act isn't going too well.

Registration per se is for the primary benefit of the public as I see it. It holds little in terms of protection for the practicing professional. Valuations, reports, surveys, recommendations and other professional findings, however, expertly prepared are fertile ground for a multitude of future troubles. Any violation of any code or registration law presents the greatest opportunity for public involvement in our affairs in the future.

It's important for us now to maintain our scientific image in the public's eye and studiously avoid the drift toward commercialism. Witness the current trend toward professional advertising in medicine and law. A good course for the future, I believe is:

1. Continue doing our best for the public interest as we know it to be.
2. Enlarge AGES membership to help protect us from the excesses and abuses of the public.
3. Monitor all pertinent state and national legislation.
4. Keep an updated Model Registration Bill available.
5. Also, it won't hurt to increase your professional liability insurance coverage.

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OPENING COMMENTS BY FRANK W. HARRISON, JR.
LOUISIANA

Presently there is no valid or pressing need for the registration of geologists in the State of Louisiana. Most geologists in Louisiana do not approve of registration, believing it is not prudent or necessary at this time. In addition, the State of Louisiana is not interested in broaching this matter. In Louisiana the geological profession is held in the highest esteem by the State officials who are thoroughly familiar with its function. Geologists can testify in courts and before commissions as expert witnesses based strictly on their qualifications. The state's recognition of the profession is more apparent when one realizes that 60 percent of all Louisiana tax revenues are derived from oil and gas, and severance tax alone amounted to over $500,000,000 in 1976. So it is a fact the State of Louisiana runs on oil and oil is its biggest industry. Therefore, it is very aware and appreciative of the geologist's role in the industry.

Citizens in Louisiana, because of the oil industry's importance to the State, hold the same respect as the State for geologists and are knowledgeable about the profession and its operation. Again, there has never been a significant movement by citizens, who see no need for such controls, for registration.

To quote a legal aide on the staff of the Secretary of State, "registration can create more headaches than you can get rid of." This statement is true in Louisiana. To establish the concept, a law must be enacted by the legislature creating requirements and administration procedures.

So the risk of a "bad bill" will always exist, one which passes with unreasoned and unreasonable proviso. Also, in Louisiana, professions are governed by Boards, 35 of such, which are politically appointed. Therefore, the possibility of an incompetent Board is a probability. Finally, registration would set up just one more bureaucratic agency to regulate the profession when there is no serious need.

The best single argument in Louisiana against registration is that the status quo is working splendidly, so why change it? There are few if any impostors in the profession. The public appears to be satisfied and adequately protected against malpractice, and security laws of Louisiana are the same as the Federal laws, so that State legislation would not provide for any additional protection to the geologist.

In conclusion, the few advantages achieved by registration are outweighed, at this time, by the political risk, the monetary expenditures, the time and effort, and the possible restrictions and inconveniences to the profession.

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OPENING COMMENTS BY JOHN C. KRAFT
DELAWARE
TRANSACTIONS: DELAWARE BOARD OF REGISTRATION OF GEOLOGISTS

The Delaware Geologists Registration Act was approved by the Legislature of the State of Delaware in June of 1972.

The following is a brief quote from the initial part of the Act.

DELAWARE CODE
TITLE 24 - CHAPTER 477

AN ACT TO CREATE A STATE BOARD OF REGISTRATION FOR GEOLOGISTS, TO PROVIDE FOR REGISTRATION OF GEOLOGISTS AND REGULATE THE PRACTICE OF GEOLOGY, TO PROVIDE FOR
ENFORCEMENT OF THIS ACT AND PENALTIES FOR ITS VIOLATION, AND TO PROVIDE FOR AN INITIAL REGISTRATION FEE

WHEREAS, the protection and development of the natural resources of the State of Delaware require full and accurate knowledge of their bases in the State's geology; and,

WHEREAS, the evaluation of the feasibility and impact of major works of man require assessment in the context of geology; and

WHEREAS, the evidence put forth by geologists will exert increasing influence upon the expenditure of public and private funds within the State of Delaware; and

WHEREAS, the practice of the science of geology requires education, skills, and experience that cannot be readily evaluated by those requiring services in the field of geology; and

WHEREAS, the proper practice of geology directly or indirectly affects all the citizens of Delaware through decisions relating to water supply, mineral resources, land utilization, planning, geologic hazards, and construction practices; and

WHEREAS, there is need for legislation to provide for the registration of geologists and regulate the practice of geology in the State of Delaware;

NOW, THEREFORE,

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF DELAWARE

Section 1. Amend Title 24, Delaware Code by adding thereto the following new chapter:

CHAPTER 36 GEOLOGISTS

3601. Definitions

As used in this chapter --

"Geology" is that science that deals with the composition, organization, physical and chemical properties and history of the earth and its life, equally as recorded in rocks, and the application of that science to utilise the location and the use of rocks, minerals, waters and other fluids and earth materials, except that the profession of "well-drilling" shall not be considered 'geology' within the definitions of this chapter.

"Geologist" is a person qualified to practice professional geology including specialists in its various subdivisions such as geophysics, environmental geology, and hydrology, except that a "well-driller" shall not be considered a geologist for purposes of this chapter.

"Board" is the Delaware Board of Registration for Geologists.

3602. General Provisions; exemptions

Every person practicing geology and offering geological services to others within the State of Delaware shall be registered as a professional geologist with the Board, except that:

(a) persons engaged solely in teaching the science of geology; and

(b) persons engaged in the practice of geology under the direct supervision of a professional geologist registered in the State of Delaware, who shall be responsible for their activities; and

(c) persons practicing well-drilling;

(d) persons engaged in the practice of engineering as Registered Professional Engineers; and

(e) persons employed by any agency, or authority in the State, shall be exempted from the provisions of this chapter.

3603. Board of Registration of Geologists; appointment, qualifications, term of office

(a) There is hereby created a State Board of Registration of geologists, who shall administer the provisions of this chapter.

(b) The Board shall consist of three (3) qualified geologists, appointed by the Governor for two-year terms, and shall include the State Geologist. Board members shall be citizens of the United States and residents of the State of Delaware. The State Geologist shall not be required to be a citizen of the United States or a resident of the State of Delaware. No more than two members of the Board shall be on the same political party. Board members may succeed themselves.

The ACT goes on to spell out the structure of the Board, the arrangements for appointing and term of the Board, the duties of the Board, the nature of requirements for registration, the nature of events that might lead to revocation of registration, penalties, and more.

Presently there are approximately 125 geologists registered as Registered Professional Geologists in the State of Delaware. Approximately 60% of the Registered Professional Geologists of the State of Delaware are not residents of the State. The majority of these people reside in the eastern part of the state and are employed by petroleum companies. On the other hand, residents of states throughout the nation from Alaska and California eastward are represented. It is estimated that 30% of the people represented in the State of Delaware are represented by geologists who are not residents of the State.

A relatively small number of geologists in the State of Delaware set out to create a State Board of Registration for Geologists. The Board set out to define the practice of geology and its impact on the state's natural resources. The Board was established to regulate the practice of geology and to ensure that only qualified geologists were practicing in the state. The Board was also established to protect the public by requiring that geologists be licensed and to ensure that geologists were held accountable for their actions.

Further, a number of engineers in the State were creating basic geological decisions. The engineers were not misrepresenting themselves. However, they were, in many cases, taking actions in areas in which they were poorly trained or untrained. For these reasons, a small group of geologists developed, with the aid of several interested legislators, the 'Act to Create a State Board of Registration for Geologists'.

Initially, there was significant opposition to this from a number of geologists. The rationale was that our approach to the matter was that experience should be the major factor in determining whether or not one should be registered. Further, an intensive check into the character of the person both professionally and personally was to be made. A number of younger geologists with little experience made very strong objections to the initial hearings regarding the new act. However, we felt that there could be no substitute for experience and registration when dealing with matters of importance to the people of the State. The act provided for younger, less experienced geologists to practice geology in the State under the supervision of a registered professional geologist. Five years later, it appears that the act to register geologists is working well. However, our congress of date to date have led to some recommendations for modest amendments to the Act.

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OPENING COMMENTS BY EDWARD A. HALL
CALIFORNIA

The main arguments for and against registration may be summarized as follows:

Why have registration?
1. Protects public health, safety and welfare.
2. Protects the public from fraud, quackery, incompetence and malpractice.
3. Gives the registered geologist legal status in hearings and courts of law.
4. Protects the good name of the geological profession and its qualified membership from the misdeeds of incompetents.
5. Improves the prestige and probably the monetary remuneration of geologists relative to registered engineers, and other non-geological professionals who may employ geologists.

Why not register?
1. Introduces a layer of government regulation to a profession wherein the vast majority do not need regulation.
2. Stifles freedom of choice to practice specialties within the profession.
3. Add to the cost of practicing geology.
4. Subjects the profession to the threat of political influence.
5. To educational requirements of the universities plus certification and self-regulation by the professional societies will do a better job at less cost without the threat of politicization.
6. Legal status may be achieved by state recognition of certification by the professional societies. The State Bar in California is a professional society of lawyers which is chartered by the state for examinations and registration purposes.

The registration law which went into effect in June 1970 in California was a good one. It originally included geologists, but was later amended to include geophysicists. So that you may see the primary reason why registration came into being, I wish to quote some paragraphs from a letter by Bob Paschall who was AGS Cal Section Legislative Representative for many years. Bob says as follows:

"Paradoxically, I worked for a registration law in California, and I did not want one and would just as soon do away with the whole thing. How can this be so? We had a situation here that may not prevail in all states. The Association of Engineering Geologists is strong here, and AEG was bound to achieve registration. The reason for this was that engineering geologists typically worked for civil engineers and were always in a subordinant position to them in professional decisions and in pay. AEG figured that registration would put them on par with the long-registered engineers. They made their case for registration of just their specialty by continued reference to the works of man on which they engaged -- dams, highways, sites for major buildings, etc. -- where the public health, safety and welfare were involved. The underlined words are key ones in persuading legislators of the justice of a cause.

It became evident that AEG was not going to cease its efforts until it got registration for engineering geologists only. I worked at that time that I began to work, along with several others, to obtain a statute that would not leave other geologists out in the cold. Those of us who worked on the job never ceased to be amazed that many, perhaps most petroleum geologists could not recognize what their position would be if they were not registered and engineering geologists were. It would have been deadly. One example: the AEG's early bills would have allowed only its members to practice groundwater geology, although it is a field that comes much more naturally to an oil geologist.

So we got a general registration law, although the AEG outflanked its fellow geologists even then, demanding and getting special certification for engineering geologists." (End of quotation from Bob Paschall.)

There is a good reason why the AEG is strong in California; it is because of geologic hazards abound. Examples are the failure of the St. Francis Dam in 1928 with over 400 lives lost (no geologic foundation studies were performed), the failure of the Baldwin Hills reservoir in 1963 due to displacement on a previously recognized fault (five lives lost) and the near failure of the Van Norman Dam during the San Fernando earthquake of 1971. Failure of this poorly constructed earthfill dam could have killed 20 to 30 thousand people.

The danger from earthquakes is ever present, and continued geologic vigilantism is required to delineate active faults so that building in hazardous areas may be discouraged. There is danger to life and property from landslides, floods, and tsunamis or tidal waves. The cumulative affect over the years from losses of life and property has built up a great recognition of the worth of the geological profession, and a body of legislation has been passed which requires employment of many geologists in behalf of public safety.

Geologists in California now have the awesome responsibility of deciding whether the 700 foot high, thin concrete arch dam at Auburn will be safe from movements along faults in the vicinity which may or may not be active. Failure of this dam would inundate the state capital at Sacramento with great loss of life and property.

While AEG was a prime mover, there was considerable effort on the part of petroleum and ground water geologists and other types also, since there was considerable encouragement by engineers and other professionals into their specialties, as well as flagrant abuses by untrained individuals.

As a result of the combined efforts of all professional geologists, the registration act was passed and signed into law in June 1970.

Between 1970 and 1974, while Ronald Reagan was governor, the registration act was amended as intended with six professional geologists and two public members on the board appointed by the governor. The six geologists had adequate geographic coverage plus representation of petroleum, mining, engineering, and geophysical competence. An executive secretary was hired by the board members to serve on a long-term basis as the composition of the board changed. Examinations were devised and administered to the applicants for registration. The two public members were a valuable asset and a watchdog for the public interest.

Following the election of Governor Brown in 1974, problems began to surface. When the four-year term of members expired, the governor refused to appoint a successor, in spite of repeated letters from AGPS and our friends including many legislators. The board then had a full strength for an extra year, as provided by the act, but from June 1, 1976 to present, the board has functioned with only three professional members.

The next disaster to overtake the board was the passage of a bill at the behest of the Governor (SB2116) to establish a majority of public members on the board. This bill became effective January 1, 1977, and provides for an eight-man board, including five public members (one with expertise in geology). Also included are three registered professionals (one engineering geologist, one petroleum geologist and one geophysicist).

The governor's purpose was to insure that citizen participation would force the geological profession to serve the people and not just itself. This can only be viewed as a classic case of overkill and an insult to the integrity and honesty of the most prestigious members of the geological profession.

The tragedy of the situation is that the board has lost its ability to properly represent the geotechnical disciplines and the geographic distribution of the profession. Governor Brown's public member appointments so far have been good, but there have been people, by simple or even unaware, that are not trained to handle the technical details. Their vote is nevertheless required to meet the quorum requirements of the act and largely, there has been a lack of quorum at meetings due to disinterested public members who do not attend. The board has turned in degeneracy to the general societies, including AGPS for input of new examination questions which must be constantly changed for twice-yearly examinations. Developing good problems is a difficult and thankless task, and dedicated geologists are needed on the examination committee which AGPS formed at the request of the board.
Due to an oversight, we failed to stipulate the publication of a directory of registered geologists every two or three years, and the Director of Consumer Affairs refused to work toward it until he received requests from some legislators. We now have a directory to replace the old one, which was published in 1973 prior to inclusion in the 1000 geologists in the state. When and if another will be published, no one knows.

Every year, AGPS must be mobilized to help defeat a bill designed to politicize the State Board of Registration by empowering the Director of Consumer Affairs to replace the executive officer of the board, who is now a high-qualified professional hired by the board. This would create chaos, since directors change frequently. The executive officer must be a highly-qualified person who is assured of continuity in office without fear of replacement for political reasons. This year’s bill was defeated in committee due in part to AGPS efforts.

In summary, we created a registration board with high hopes that it would do a service to the profession and to the public. During the past three years, we have had to struggle to keep it alive and functioning properly. We only hope that our problems will not be repeated in other states.

Registration under the original bill before Governor Brown got it was a good thing for the profession and the public and achieved a maximum number of the good elements like those previously mentioned. Bad men in the middle. There is no doubt that we would do it again as it was originally conceived, but not as it is now. Those who contemplate registration should remember well that it has taken lots of hard work to preserve it from foolish whim of the changing body politic.

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OPENING COMMENTS OF JOHN E. WOLFE
CALIFORNIA

It appears to have been a much simpler life in those days when dinosaurs roamed the earth, and geologists and geophysicists weren’t licensed. Dinosaurs are extinct and some geologists and geophysicists are licensed, and you can’t help but wonder if they are adaptable enough to survive in a political world where survival of the fittest is as applicable as it is in the jungle.

For those who are in the political world, it’s good to know that the AGPS has always actively promoted professional geological practices and has been interested in working for equitable uniform licensing laws throughout the country. The California Section has begun to take a greater active interest in the appointment of board members and in the activities and policies of the California registration board. I know that some geologists have expressed misgivings about registration as a result of recent amendments to the California Act, and are re-examining the purpose of registration by asking if registration is necessary.

The only purpose of any occupational licensing law is to protect the citizens of the state, and this was very appropriately stated in the first paragraph of the original bill (AB-600) that was signed into law by Governor Reagan in 1968. The paragraph reads:

"This chapter is enacted in order to introduce qualifying criteria in a presently unregulated professional field. Such action recommends itself through benefits to the safety, health, and property of the people of California and to the promotion of the public welfare. The authors have in mind the fields of geology as related to engineering, ground water, mineral exploration and development, geologic hazards, the further development of the science of geology, and other geologic matters of concern to the people of the state."

The legislature delegated authority to the board to administer the Geologist and Geophysicist Act (Chapter 12.5 of the Government Code of California). The board cannot assume additional authority nor can it abdicate its duties and responsibilities to other boards. It has been given specific authority to regulate the geology and geophysical professions by licensing qualified applicants, disciplining licensees, who violate the Act, investigating and aiding in the prosecution of unlicensed practice, and establishing regulations to implement, interpret, and make clear the Act. It is also specifically charged to work towards establishing relations with other states for the purposes of uniformity in professional standards and mutual recognition of registration. Idaho and California established a mutual recognition of registration in 1964, and the California Board hopes to develop a similar agreement with Georgia and other states.

The purpose of registration is not to protect or advocate the policies or programs of the profession or of any other professional or special interest groups. All groups should have access to the Board and its members and are welcome to participate in board activities and decisions through attendance at the public meetings. At the same time, these groups must also realize that the ultimate responsibility of setting policy and making decisions has been delegated to the Board.

If the laws need amending to give the board greater authority or to alter its original purpose, the changes should be made through the legislative process and not by tenuous administrative decisions.

The most important factor to help assure that the best decisions possible are made is the appointment of knowledgeable and ethical individuals as board members. In any state, whether large or small, the board members should be chosen on the basis of their knowledge and ability and on the basis of their dedication to serve the public. In a 1976 Independence Day speech before President of Boston University, addressed part of his talk to the subject of excellence in government when he spoke of the necessity to serve the citizens, of the need for qualified people to make decisions, and of the dangers of a counterfeit egalitarian philosophy. As Californians, we are fortunate to have exceptionally well-qualified people appointed to the Board. In all of their discussions and subsequent decisions, the protection of the public has been the foremost concern of the California board.

Are boards necessary? It was necessary to register geologists and geophysicists in California, but what is appropriate for one state may not be in the best interests of citizens of other states. Only the people in those states can decide.

The Association of Engineering Geologists worked for registration more than any other group because of the earthquake problems throughout the state and of the hazards associated with hillside developments in Southern California. The St. Francis dam failure of 1928, the Saglekeerse dam failure of 1952, and the Baldwin Hills dam failure of 1963 also contributed to the decision and the efforts to obtain a registration law.

Heavy losses from settlement, landslides, and erosion were sustained by homeowners in Southern California during the 1951-52 winter. As a result, the first geologic ordinance was passed in the City of Los Angeles in 1952, and geologic investigations were required on all proposed subdivisions. In order to identify those geologists who had the experience and were qualified to work on problems associated with developments and structures, the City of Los Angeles created the Engineering Geologist Qualification Board in 1958, which was followed by Los Angeles County in 1959, Orange County in 1962, and Ventura County in 1967. In addition to the counties, approximately 19 communities in Southern California and several in Northern California, especially in the San Francisco Bay Area, created geology certification boards. A geologist was restricted to practice in those few cities and counties who was licensed. This type of arrangement resulted in unnecessary restrictive regulations, greater expenses for everyone, and in many cases, reports. When the Act became law and the board was established, the local qualification boards were disbanded by the local agencies and they recognized the geologists and certification. Anyone registered by the board could legally practice geology and geophysics in any part of California.

It appears that I’ve concentrated on engineering geology, but other branches of geology are just as involved as public welfare and engineering geology. Since 1969, such issues as ground water supply, flood control, solid waste management, mining reclamation, environmental control, and actigraphy legislation (Agricultural Act) are of concern to all geologists in California. In addition, the unethical geologist or others who promote questionable oil and gas plays, and who are the bane of the petroleum geologists, have become active since this legislation passed, so I’ve been told.

The main tasks for the board since the geologist and geophysicist grandfather period, when approximately
3,000 geologists and 900 geophysicists, and 900 engineering geologists were registered, are preparing and administering examinations and investigating complaints.

Examinations for registration as a geologist and as a geophysicist and for certification as an engineering geologist are given twice a year. The examinations must be changed each year, and this means that the board must have a continual supply of good, relevant questions for a fair and equitable examination. The California Section of APGS and several of the other AEG committees have organized examination committees to help maintain a supply of questions after the board lost three of its professional members.

So far, the examination committee has developed a good examination program. These committees provide a very valuable service to the board. I don't know just what we would do without them.

The other function is to discipline licensees and to investigate and aid in the prosecution of unlicensed practice. The board is given the authority to discipline a licensee for any of the following violations:

A. Conviction of a felony substantially related to the practice of geology and geophysics
B. Incompetency, misrepresentation, violation of contract or fraud
C. Aiding or abetting violation of the Act

It's not as simple as it appears because the burden of proof is on the board. Investigative work for the board must gather evidence to prove the charges before a license is suspended or revoked.

Do the benefits of registration justify the expense to maintain a licensing program? Ian Campbell concluded his article on registration in one of our letters with the same question. Costs can be determined easily; however, intangibles such as the benefits from eliminating charlatans, upgrading practice, and encouraging fees, taking examinations, increasing bureaucratic regulations, and becoming more political. The added protection to the public through registration worth the loss of independence and freedom. California geologists and geophysicists thought it was.

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PRESIDENT'S ANNUAL REVIEW
December 3, 1977

Introduction

As we close out the 1977 administration of the APGS and look forward to the one on-coming in 1978, it is well that we do that as far back as the beginning of the year in San Antonio, Texas. Why? Like the APGS, San Antonio is the charming capital of the South Texas area area combines most of the typical geographical features: coal, oil, gas, uranium, and others, and we stand here directly above the tremendous Edwards limestone water supply aquifer. And, as for oil and gas we see classic strand line production to the south in the Jim Hogg-Duval County areas, salt domes along the coastline, and the famous Luling-Balcomes Fault System directly east from here. The history of geologic practice and exploration goes way back in the South Texas area. I think back fondly to my days in San Antonio in the late 40's and early 50's when we all made those long runs down to Seeligson, Premont, LaGloria, Duval County, and "the Valley."

The APGS Texas section has done a marvelous job with this convention under the direction of Wayne Wood, with an outstanding program put together. Tom Barber and all the other committee chairmen who did so well in making this our outstanding annual gathering.

The Strength is in the State Sections

I had the opportunity to travel throughout the United States, visiting numerous state sections, a number of which was during the course of their annual meetings. It certainly brings home the basic principle of APGS activity, that the real strength lies in the state sections. I have always considered that the basic principle on which APGS was formed was the principle of self-government by the members. The strength lies in the strength of state sections and that the real activity, proposals, ideas, and movement should come from the state sections.

APGS will be only as strong as those constituent areas remain active and indeed become more active. The national officers are to do no other than offer guidance in policy for the good of all in an attempt to focus the views and overall thrust of the total national effort. We must encourage the state sections to become even more active in carrying their views forward so that the accomplishments of one particular area may be conveyed and recommended to other areas with the national office acting as the coordinating agency. Headquarters and the national officers cannot do the job -- the individual APGS members must get the job done by making themselves known through their state president and through the advisory board.

Take Colorado for instance -- the current issue of the Professional Geologist carries an excellent program of "position papers" and action decisions in depth. The Colorado Section of legislation at the national level. Colorado has also been quite effective at addressing matters of federal laws, and an important action draft is being written by the USGS personnel currently acting as that agency. The strong liaison with the Denver based USGS personnel provides much opportunity for all of us to enjoy a more direct involvement with the USGS and similarly instructive output therefrom; not to mention the useful liaison afforded.

Look at Oklahoma. We all have benefited greatly from its leadership in state and federal securities matters due to their activity in helping promulgate new laws with appropriate regulations in that state.

Turn to California. Their work in geologic hazards and state registration have provided us all models of action to follow, and to consider, and to profit from their experience.

West Virginia and Pennsylvania have lent us good instruction in certain environmental problems. Now, I will stop here, but I believe my point is clear.

Legislative Activity

As the 1976 annual meeting in Tucson the members voted that they wanted a continuation of and indeed more legislative activity at the Conference. This is precisely what we are going to do, and I believe we have been successful. We already had a good history of legislative activity set during the previous administration, especially the past two years. The widening of the Legislative and Regulatory Committee under the leadership of Ad Bonkala and coupled with the representation by James Hammersley, the Washington representative, led to considerable success in 1977. I believe it fair to say, "we really got with it" and had this activity we had much impact on numerous bills by our representations. The President made numerous trips to Washington during 1977 as part of this activity.

The Earthquake Hazards reduction bill, HR35, S126, because of a very strong force by the President and being referred directly to and used during the floor debate on the bill. Our work accomplished the changing of the bill to direct attention to areas of the country that had not been considered in the past nor was going to be in the future. Furthermore, as result of our testimony we were invited to "be on call" so to speak to provide professional testimony on other matters at the future hearings of an earth science nature and perhaps also act as an advisory group.

We were particularly effective in the strip mining bill which rose out of HR2, S7, and became law. Even after the bill arrived at the Senate Committee we were able to effect changes in that bill, especially Pertinent to geology and definition of geologist. The strip mining bill may be one of the two or three most important bills having to do with mineral industry in this country during this century. And with that APGS action per se was of some importance, would have been disfranchised from their proper placement in professional practice as defined within that bill. With that APGS action that is exactly what happened. To our knowledge we were the only agency to accomplish any changes in this bill in its later stages through Conference and especially the final Conference Committee is highly unusual. We have continued to be busy after passage of the Act in addressing the regulations that have been written. Senator Dole and S ARY were active in this bill and appreciation was expressed to Stu Hughes and Fred Mullin for their input.

We have continued that it is each government agency and in providing statements and testimony on the regulations. Art Brunton has been especially active in this.
We were active in the Alaskan Landa bill, HB30, 1652, S1782, 449, and 1500 by providing testimony.

We were especially active, and effective in the Deep Sea Bed Mining bill HR3350, 3562, and S2200. Ad Honkala and John Moses provided original testimony followed by a statement from T S Ary. Aside from addressing our technical aspects and exploration and technical phases of this bill, we were able to point out certain economic and dangerous political implications of its passage to the United States among the 77 nation group. We believe it fair to claim that our testimony contributed to the deferral of action by the U.S. Government.

The Mining Law Reform bill, HR9292, 5631, S1244 provided opportunity for Senate hearings and further hearings in the field. T S Ary provided excellent testimony.

We were quite active on the Outer Continental Shelf bills, HR 1614 and 89 in providing testimony in both Senate and House hearings. A great many agencies and groups testified on these bills, but we believe it fair to say that APGS has a significant part in the overall testimony in effecting a "second look" at these bills and a deferral at least until next year for a better review. The President and John Galey provided testimony in the House and additional contacts and input throughout the year.

The Alaskan Wilderness act, HR39, provided opportunity for APGS statements and testimony by T S Ary.

The National Heritage Trust remained under active surveillance by APGS with input being done informally. Stu Hughes was active in this area in providing information to the markup committee.

APGS filed a lengthy statement on the BLM Organic Act - 5507.

On Natural Gas Deregulation S256, HR687 (Pearson-Bentum), APGS provided considerable input and informal statements and the President and John Galey were active with key congressional representatives and other throughout the year.

APGS filed statements in the ERDA authorization act, S36, 37 and 266.

APGS provided a series of input papers, primarily organized groups, on organizational matters, authorization, and authorities of the President and the Department of Energy.

On the National Energy Plan (Carter's Energy Bill) APGS carried out an extensive program of representations against the President's program of providing energy resources to the public. APGS took a stand early in the development of the plan to oppose the program, which eventually carried through in the Senate.

The APGS was given an opportunity to participate directly with the President and the Secretary of Commerce, the President's energy advisor, in a meeting concerning the energy program and the President's views on energy issues.

On the Mineral Leasing Act, HR5709 (UDall's Trojan Horse vertical and horizontal divestiture bill) remained under active surveillance when it first surfaced and continues to be so.

APGS remained active throughout the year on land withdrawal actions, prepared statements to appropriate authorities on the liabilities of much of this action along with constructive criticism on corrective actions that should be taken.

The APGS has just submitted statements to the EPA on water policy and underground water contamination rule making prior to the November 28 deadline.

Communications continued between the APGS President and the Secretary of the Interior regarding the Directorship of the USGS, a point of great concern to most earth scientists, and rightly so.

I hope you will indulge me by my lengthy discussion on legislative activity for which considerable details are available in the various President's Reports issued throughout the past year, and I shall attempt to go into the significance of the various bills in the short time provided for my report here today. However, I believe it fair to say we have been quite active in legislative activities the past year and have stepped forward more firmly in addressing legislation in a constructive and effective manner. Effective legislative activity is "getting with it" and mixing it; much of it is not glamorous, doesn't necessarily lead to a great deal of conversation, but is done because hard work by our many APGS members and especially those of the Legislative and Regulatory committee which has been so effective throughout this past year working in concert with our Washington representative, Jim Hemersley. Indeed, it may be we have let some of our other endeavors languish a bit in light of this effective and objective role in the legislative areas, but this was an extremely critical time in our Nation's history and was a time, if we were standing in order to address the issues on the Hill in Washington it was well that we did just that in 1977.

Committee Work

I will not endeavor to go into a detailed discussion of the committee work as it will later appear by individual committee reports in the Professional Geologist. I would like to touch on some highlights though, especially that of the committee recommendations on Plans and Programs for the Future under Ed Rue, our in-coming President elect. An interim report has been filed and the committee work will continue into 1978. That committee's charge was not so much as to plan for the future as it was to look ahead 5, and 10 years into the future and decide what we would like to do, and what is it going to take to get there. If some of us sometimes feel APGS does not plan well I merely direct your attention to the "goals report" contained in the special edition of The Professional Geologist several years ago and look to see how we have come along. A three exercise is to take a look at the goals report and check off all of the multitude of objectives we have met and how we have met them. I believe you will be very surprised to see as well how we have added almost all of the goals set forth in that very well done report. It is a good exercise and I invite your attention to it for the good feeling it will give you as to what APGS is capable of doing and has done.

I especially want to cite the activity of the Policy Board which has achieved an excellent series of goals and organizational restructuring that should prove to be an excellent structure to communicate both outward and receive flow of information from our various member societies. I personally, have felt from the very beginning that the Policy Board could be one of the most effective instruments for reaching out to all of our member societies and to enjoy benefit from the advice, counsel, and action of these societies. I urge our predecessors to keep this important group with addressing our needed activity in position papers, and U. S. mineral policy, and concerted PR in advancing the prestige and public acceptance of the earth sciences and what they are doing in the public good. I believe the membership will be very interested in the forthcoming committee reports from the Professional Geologist on the very worthwhile jobs being done in setting the structure for activity in 1978 and beyond.

The Professional Geology Committee has three new guides in preparation with one new one just published with a continued good run on supplies throughout the year.

Pubic affairs has received excellent airing under Father Skehan and especially with the very good work by Mr. K. T. Chew. The groundwork they have set this past year should spring forward to even more effective representations this next year.

Salary Survey

Joe Fritz has done a good job putting together a salary survey questionnaire which borrows heavily from his personal experience and in previous activity thereof. The pros and cons of whether this should be done or not, and how, remains yet to be decided but at the moment, there appears to be some question as to whether this is entirely needful. The new administration may wish to discuss the question further.

The Divestiture

The Divestiture matter will carry over into 1978 with a need for our membership to be more informed on the actual technical aspects of vertical and horizontal divestiture. It may appear that we have dilatory in coming to grips with this extremely important question and this is not to imply that APGS in 1977 has not considered this question unimportant. We had hoped to proceed in a methodical fashion informing our membership which has been done principally on horizontal divestiture through the excellent work by the SEG. Considerable
material has been gathered and the basis for a good questionnaire has been prepared by Joe Fritz. We thusly refer on to the incoming administration, a recommendation that firm activity be immediately fostered in this area.

Membership

On November 30, we see our membership has spun past the 3,500 level with 491 new members in 1977. This was the last year for members to be received under the reciprocity agreement and many new members have availed themselves of this opportunity. We also continued to enjoy a strong influx of members from the AAPG/DEPA. We also welcome Arizona as a new section.

Recommendations for Future Activity

The President continues to feel strongly that position papers will tend to systemize, channel and organize much of our thinking among the member societies. The AGI Washington conference a couple of years ago was quite effective in causing formulation of position papers on a multitude of subjects. Furthermore, the AAPG has established position papers on several subjects by virtue of our testimony and statements submitted on various legislative activities in which we have been involved. I have seen an excellent piece of work just done by the Colorado Section contained in the current Professional Geologist. Certainly, it is no overwhelming job to gather all these together in one repository and the various societies work together in formulating or in completing a very useful set of papers that would take a long step toward APGS being a more effective agent in national mineral policy. It is easy to see that the position papers formulated by AGI would address itself to the more scientific aspects of those positions, as APGS, in essence, would inject a strong note of advocacy therein.

APGS, I believe, should even become more active in mineral resource policy which concerns itself with land withdrawal, the definition of future mineral supply on much of these lands, and working with government agencies on the matter of national mineral policy. Our strong member, and past Vice President, James Dunn, has some good knowledge in this area.

Continued legislative activity is a must; I believe our members are cognizant of our success in this field and our contribution to the public welfare and the improvement thereof by our past activity. One aspect of our activity that doesn't seem so glamorous is one of the greatly effective things that we can do for which we are extremely well-fitted, and that is the week by week working with the various government bureaus on the regulations for each of the various bills and the improvement of regulations on bills passed some time ago. This is especially effective when the state sections can provide input at much of the on site work much of which is done in various field offices of the government bureaus. This area needs to be better identified so that APGS can become more effective.

The investigation of PR representation, what it may do, and how it may be useful to APGS is an area that needs attention. I personally have always felt that PR takes care of itself if an effective job is being done and if our various state sections are active in making themselves known. However, the matter is especially important and should be discussed further. Our incoming president, Grover Murray, is especially talented in this area, and I am sure he will have some useful ideas to put forth.

A strong effort should be made to further the activity of the Policy Board for enhancement of communication both outward and inward with the member societies and especially for harnessing the effective reservoir of talent in those societies.

Closing Statement

This past year, as President of our APGS, I have had a wonderful opportunity to communicate with many of you and to see even more directly the effective work done in many areas of APGS. We all look forward to 1978, and beyond, under the leadership of Grover Murray, a person who has had many outstanding effective areas of work and services to his credit in science and in its effective administration. He is a proven spokesman and top flight administrator. I know that APGS and all of us will profit greatly by his very considerable talents and his leadership.